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SLICK STEREO

Aspen FR20 – PS Audio's trickledown treat

NAD C 3050 LE

The high-tech 'old-school' amp!

Lumin T3

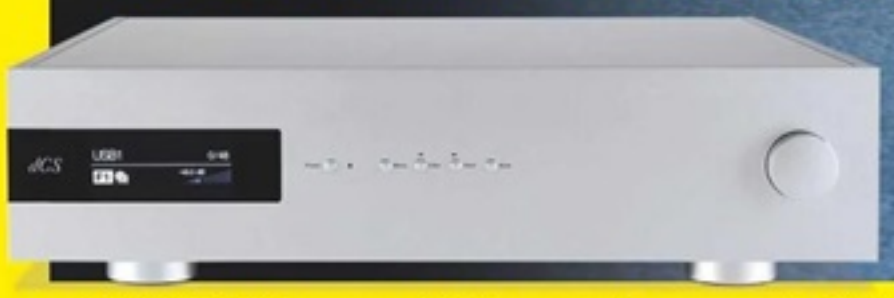
Stunning network music player

MoFi SourcePoint 10

Concentric two-way standmount

Bartók APEX

dCS DAC climbs to the top!



VINTAGE REVIEW

Beogram 4002

B&O's classic '70s deck

PLUS...

Lehmannaudio, Manley Labs & Pro-Ject

• **OPINION** 12 pages of letters and comment • **VINYL RELEASE** CSN & Young's *Déjà Vu* on 180g LP
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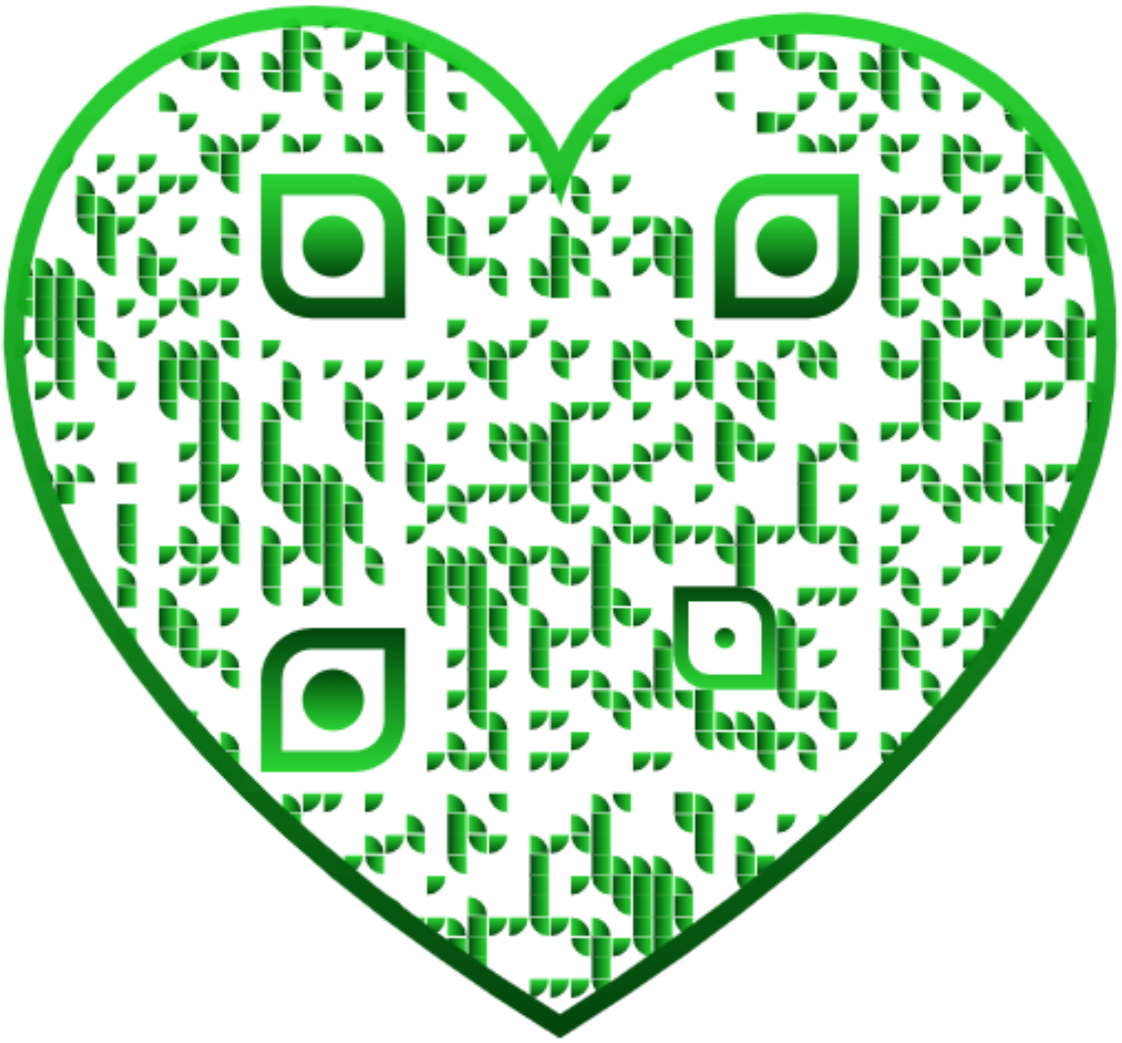

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oops, we did it again

EISA AWARD 40th ANNIVERSARY — Best Product 2022-2023 — HEADPHONE AMPLIFIER — Ferrum Audio OOR

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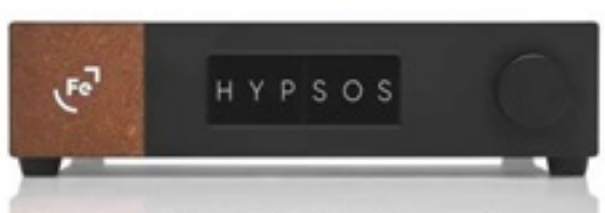
EISA AWARD — Best Product 2021-2022 — HI-FI ACCESSORY — Ferrum Hypsos



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▶ Turn the page to see layout diagrams that illustrate this system building versatility.

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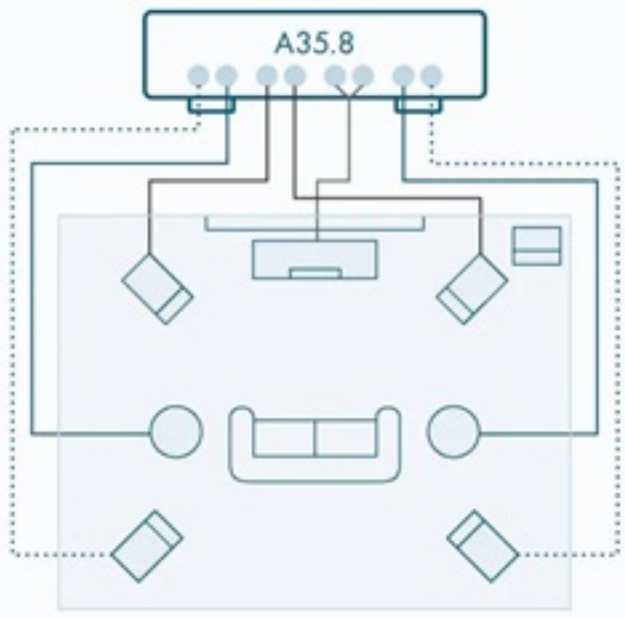
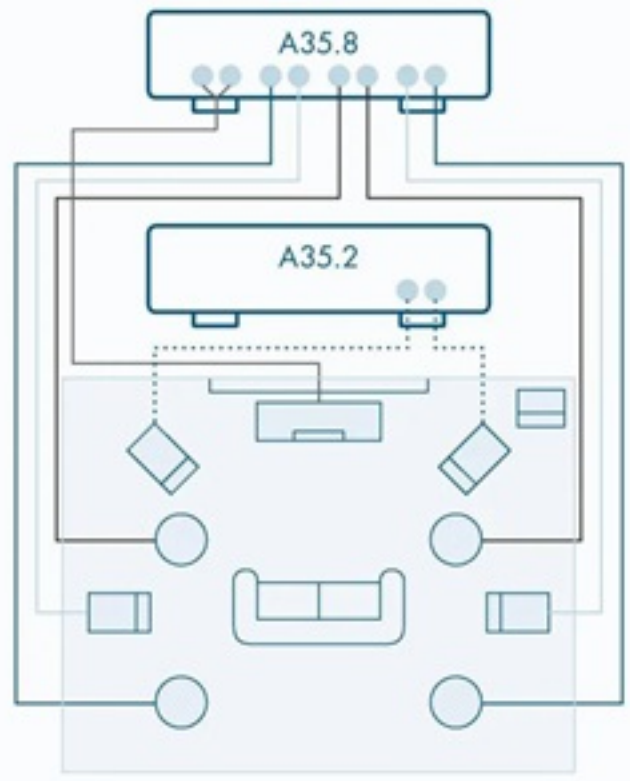
5.1.2 DOLBY ATMOS/DTS:X SYSTEM



5.1.4 ATMOS/DTS:X SYSTEM



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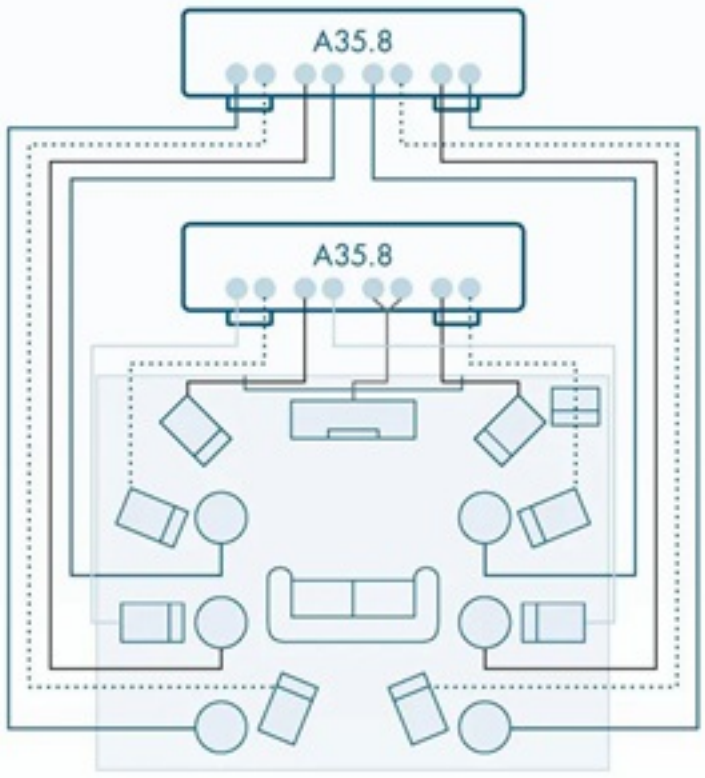
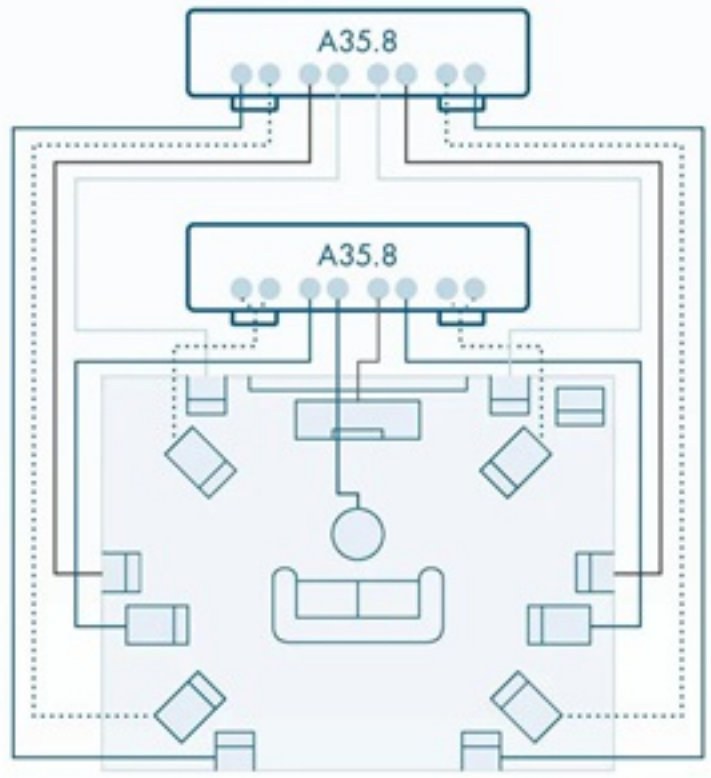
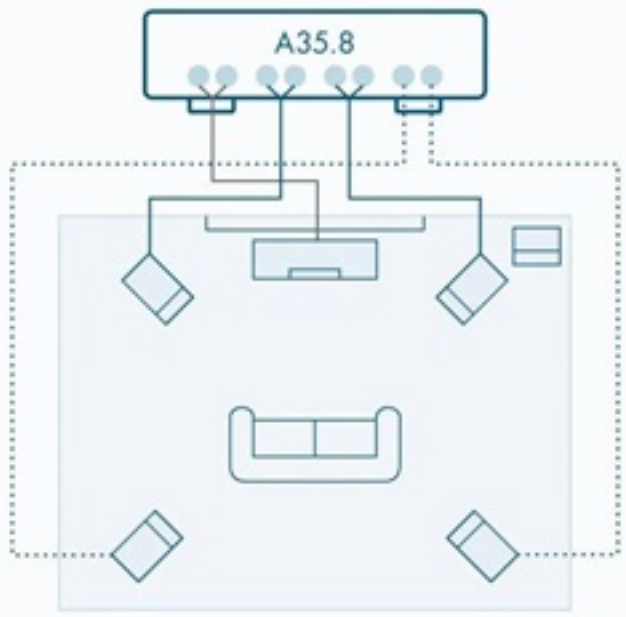


13.1 AURO 3D SYSTEM



5.1 DOLBY/DTS SYSTEM



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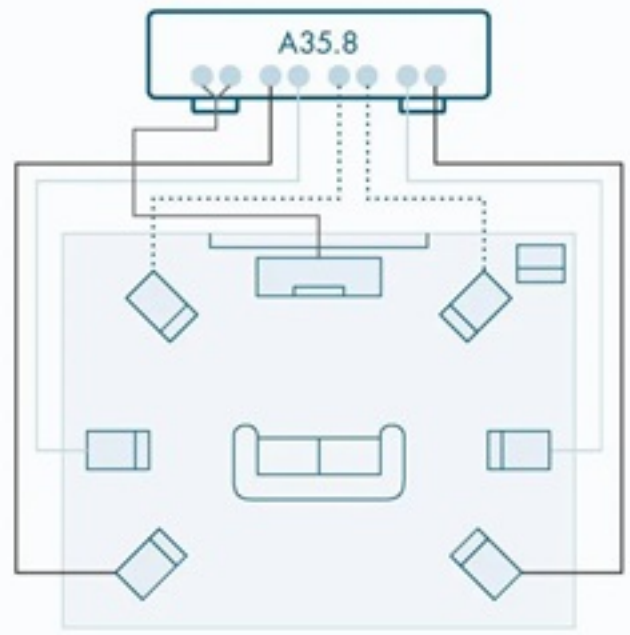
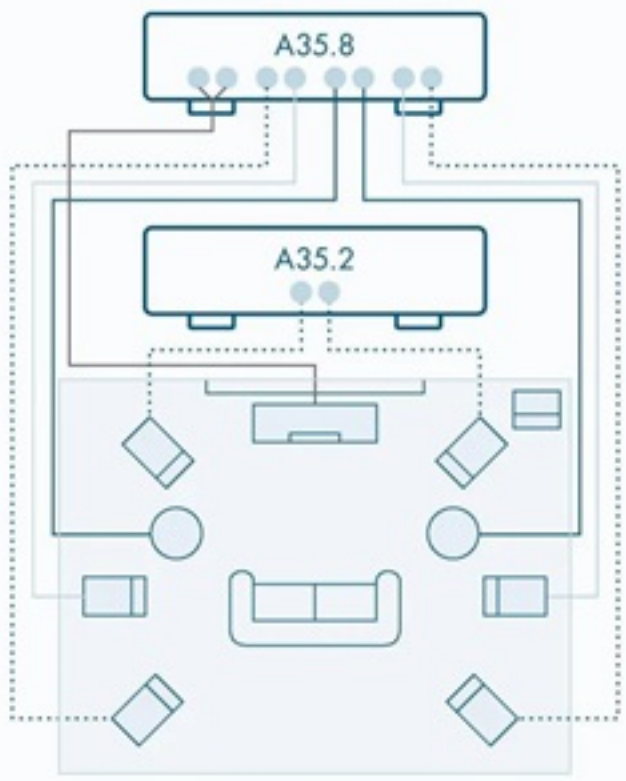
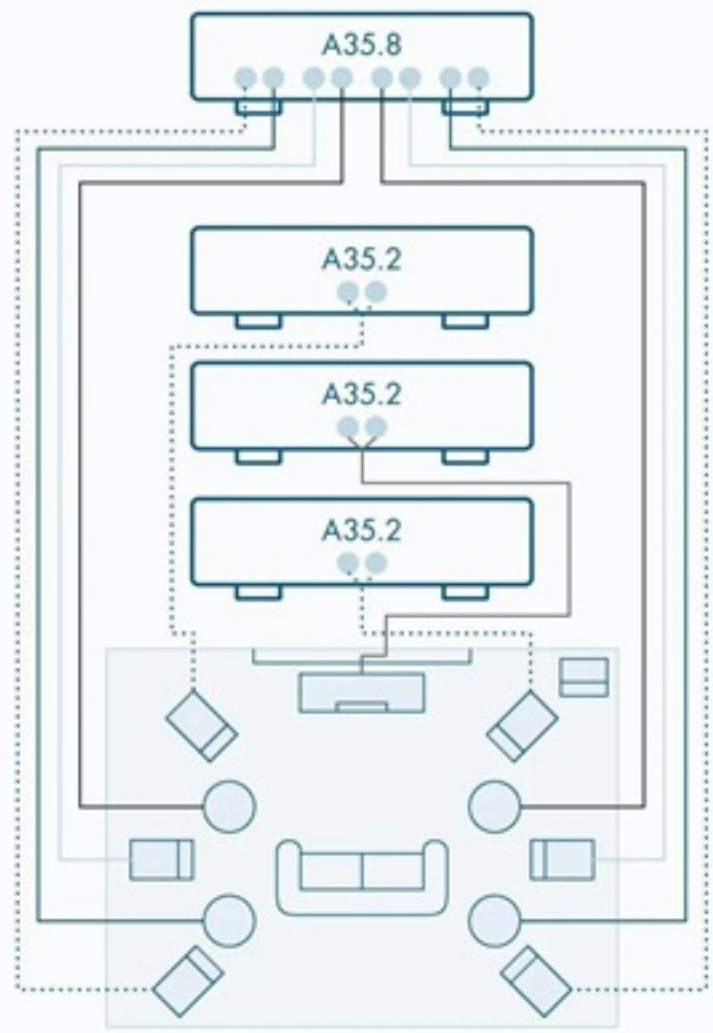


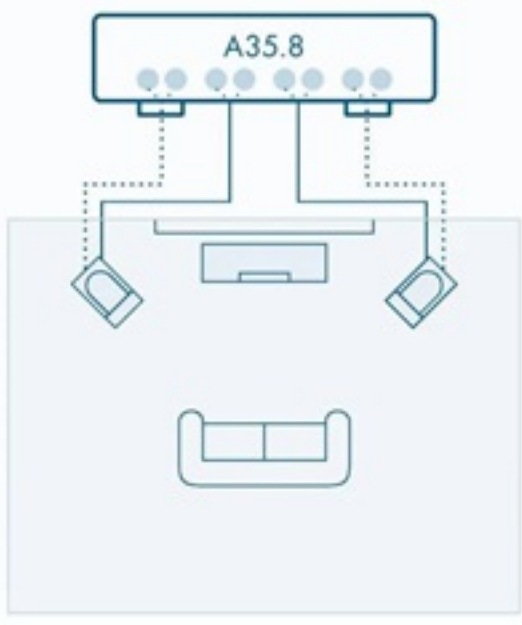
7.1.2 ATMOS/DTS:X SYSTEM



7.1.4 HIGH-POWER ATMOS/DTS:X SYSTEM



2.0 BI-AMPED STEREO SYSTEM



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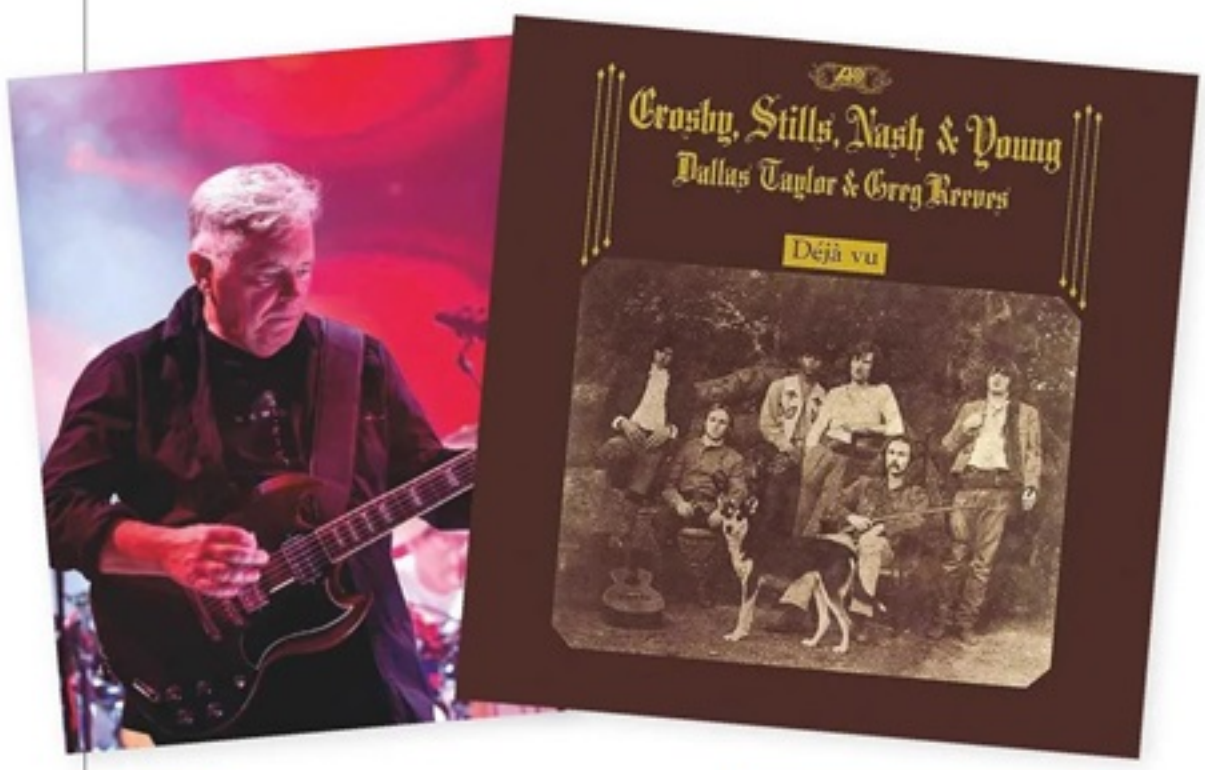
Listen and believe KEF

RIGHT: There's nothing fishy about the longevity of Manley's Jumbo Shrimp/Mahi tube pre/power combo. We haul in our nets on p52

ABOVE: German engineering at its slickest is on show in Lumin's T3 – the brand's most accessible network-attached server solution (p66)



MUSIC: A fusion of rock and electronica, New Order's *Low-life* is our Vinyl Icon (p82), while Steve Sutherland reveals the fractured relationships behind CSN&Y as *Déjà Vu* is re-released on 180g vinyl (p80)

RIGHT: *HFN* is the UK's representative of EISA's Hi-Fi Expert Group. Editor Paul Miller took over as EISA's President in June 2016 and was re-elected in 2021

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40 ANNIVERSARY

Nostalgia, so the saying goes, isn't what it was, but the attraction of celebrating the past while embracing the future remains as popular as ever. By way of illustration, the spring and autumn Audiojumbles, held in Tonbridge, have never been more popular – everyone from vintage buffs to the plain curious is looking for that rare item to complete a set, or even a full system to re-experience the sounds of a misspent youth.

Recognising that retro is not just 'cool' but also sufficiently enticing to modern-day audiophiles, the manufacturers themselves are now tapping into the zeitgeist of reminiscence. We could have told them, of course, as our unique 'Vintage Review' feature has proved unshakably popular since we launched the series in *HFN* Jan '10 [this month, the B&O Beogram 4002 turntable from 1975, see p120].

IAG is leading the charge here with its reimagining of the iconic white-baffle Mission 770 loudspeaker from 1978 [*HFN* Mar '79 & Jun '22] – a rare example of 21st century materials and know-how applied to enhance 20th century sound.

From the same IAG, the resurrected Leak name has also appeared on amplifiers that look to leverage the love for a 1960s British classic. However, I do not think anyone is claiming any sonic fidelity to the past here – the new Leak Stereo 130, with its digital inputs, is a world away from the original Leak Stereo 30 [*HFN* Oct '10] which, when launched at the 1964 Audio Fair, was one of the very first amplifiers to employ (germanium) transistors.

Five years later, in 1969, the Leak Stereo 30 Plus [*HFN* Sep '20] promised a boosted 15W/8ohm thanks to the introduction of quieter, more stable and reliable *silicon* transistors.

> 'The Leak Stereo 30, in 1964, was a very early *transistor* amplifier'

Fast forward to 2023 and NAD is joining the party with its celebratory C 3050 LE [see p70]. It's crafted to look like the 3030 amplifier from 1976 but hosts a streaming platform and Class D amplifier that could barely be imagined back in the day...

PAUL MILLER GROUP EDITOR

HI-FI NEWS' EXPERT LINE UP: THE FINEST MINDS IN AUDIO JOURNALISM BRING THEIR EXPERIENCE TO BEAR ON ALL AREAS OF HI-FI & MUSIC

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KEN KESSLER
is a long-serving contributor, luxury goods writer and champion for the renaissance in valves and reel-to-reel tape

MARK CRAVEN
Editor of our sister title *Home Cinema Choice*, Mark's passion for music extends from stereo to multichannel and Dolby Atmos

TIM JARMAN
Co-author of a major hardback on historic B&O equipment, Tim continues to research, repair and write about vintage hi-fi for *HFN*

ANDREW EVERARD
has reviewed hi-fi for over 30 years and is still effortlessly enthusiastic about new technology, kit and discovering new music

STEVE SUTHERLAND
worked on *Melody Maker* and then edited *NME* from 1992-2000, the Britpop years. Steve brings a unique slant to our Vinyl Release pages

Up to eleven

TOPPED BY R11 FLOORSTANDER, KEF R SERIES IS REBORN IN META GUISE

The 12th-generation Uni-Q driver with Metamaterial Absorption Technology (MAT), which first appeared on KEF's LS50 Meta [*HFN* Jun '21] and latterly its Blade Meta(s) [*HFN* May '22] and Reference Meta lines, has now trickled down to a relaunched R Series. Seven loudspeakers are included (with two centre channel/LCR models and Dolby Atmos surrounds) in a range that represents the manufacturer's mid-level tier, above its Q Series.

Crowning the lineup is the £5500 R11 Meta floorstander, which marries KEF's 125mm coaxial mid/tweeter Uni-Q array to a quartet of 165mm 'hybrid' aluminium cone woofers in a 1.25m-tall, 36.5kg enclosure. The mid-size R7 Meta (£4000) features two 165mm bass drivers, while the smallest R5 Meta floorstander (£3000) uses a pair of 130mm cones. For more compact hi-fi set-ups, KEF's R3 Meta is a standmount model partnering its Uni-Q array with a single 165mm woofer.

The R11, R7, R5 and R3 cabinets use constrained layer damping in addition to conventional bracing, and are rear-firing bass reflex designs adopting KEF's computer modelled Flexible Port Technology. Standard finishes are Black Gloss, White Gloss and Walnut [pictured on the R11, right]. Arriving this summer for the R7 Meta floorstander and R3 standmount (compatible with KEF's £649 S3 stands) are special edition Titanium Gloss and Indigo Gloss colourways, respectively.

GP Acoustics (UK) Ltd, Kent, 01622 672 261; www.kef.com

Sweet-spot hi-fi

AUDIOLAB 7000 SERIES TARGETS UPGRADERS

A step-up from its entry 6000 series, Audiolab's 7000 series again features integrated amplifier, CD transport and network player options, all in slender black or silver chassis. The separates feature a colour GUI derived from the brand's flagship 9000A integrated, plus a raft of under-the-bonnet upgrades. The 7000A amp (£1099) claims an uprated 2x70W and features revised analogue and digital circuitry – including a DAC stage supporting 768kHz/32-bit PCM and DSD512 via USB-B playback. Meanwhile the 7000CDT CD transport and DTS Play-fi-enabled 7000N are both priced at £549, the former benefitting from an EM-shielded tray-loading mech and additional USB-A input, the latter sporting the same DAC stage as its amp sibling.

International Audio Group, China, 01480 447700; www.audiolab.co.uk

HI-FI NEWS' NUGGETS

FOR YOUR REFERENCE

Available in 1m, 2m, 3m and 5m lengths, priced £149, £159, £179 and £199 respectively, QED's new Reference Ethernet cable is intended for use in network-based audio systems. Featuring twisted pair OFC conductors, shielded gold-plated Telegartner plugs and a multi-layer construction finished in a white PVC jacket, the cable meets the Class 1 Cat 8.1 standard and claims data rates up to 40Gbps. *www.qed.co.uk*

CALL TO ARMS

UK distributor Absolute Sounds has added Lithuanian tonearm/turntable manufacturer Reed to its portfolio. Five arm ranges are available, starting from £3098 for the carbon-fibre 1H at 9.5in, 10.5in and 12in, up to £15,000 for the flagship 5T, a tangential pivoting model with laser-based motion tracking and five wood body options. Reed's turntables are the Muse 1C (belt drive, £9998; friction drive, £11,998) and drive-switchable Muse 3C (£19,500). *www.absolutesounds.com*

Beefy Burmester

SIGNATURE MONOS INSPIRE STEREO AMPS

High-end German marque Burmester has leveraged both the engineering and aesthetic design of its Signature Line 159 monoblock for a pair of new stereo power amplifiers. Introduced as a replacement for the outgoing 911 Mk3 model, the Top Line series 216 (£23,700) is rated at 2x100W/8ohm (165W/4ohm), while the new Reference Line 218 (£34,600) claims 165W/8ohm (275W/4ohm) per channel. Fully balanced models supporting bridged mode operation and system control via RS232, they both feature Burmester's 'X-Amp' Class A input stage, a DC-coupled signal path philosophy and customary front/side panel heatsinks. The heavyweight 218 amp [pictured] also employs a 'from the ground up' power supply design using 'oversized' components.

Burmester Audiosysteme GmbH, Berlin, Ger., +49 307 879680; www.burmester.de

Something for everyone

MEET MARTINLOGAN'S FOURTH-GENERATION MOTION SERIES

Offering nine models split over two categories – Motion and Motion XT – MartinLogan's new loudspeaker family is described as a 'complete reimagining', rather than a gentle update, of the previous generation.

As before, the XT models are higher-specification designs, featuring larger (surface area) iterations of MartinLogan's Folded Motion Tweeter (FMT) and Nomex-reinforced Kevlar midrange units. Fibreglass mids are found on the Motion class loudspeakers. Shared across all are new aluminium 'unibody' cone bass drivers (up to 200mm), McCracken-Vojtko crossovers (named in honour of ML's acoustic engineers), and Gloss Black, Walnut and Satin White finish options.

Rear-ported standmount models are the Motion B10 (£1395) and Motion XT B100 (£1895), joined by four down-ported floorstanders: the Motion F10 (£2995) and F20 (£3995), and Motion XT F100 (£5495) and F200 (£6495). These are supplied with the adjustable, tool-free 'F.A.S.T' plinth with outriggers for stabilising and levelling.

MartinLogan, Lawrence, Kansas, USA, 01767 686300; www.martinlogan.com

Swiss tubes touch down

TRIODE-BASED PRE/POWER AMP DUO FROM ZEILER AUDIO

The PR-01 preamp and PA-01 power amp (£29,950 each) from Zeiler Audio – the Swiss brand's entire catalogue, in fact – are making their UK debut via distributor Digital Audio Consultancy. The single-ended PA-01 is rated at just 2x10W and uses 12AX7/ECC83s and a pair of KT150 tubes, in triode configuration, with 4ohm and 8ohm impedance matching.

The partnering four-input PR-01 is a 'pure triode Class A design'. Enclosures are milled-from-solid aluminium, while internal features include the use of cryogenically treated copper wiring, custom transformers, and isolation of power supplies on suspended subchassis.

Zeiler Audio, Kilchberg, Switzerland; 07776 511691; www.zeiler.audio

Strong arm tactics

AVID HI-FI ADDS TWO TONEARMS TO VINYL REPLAY STABLE

Complementing AVID's range of turntables, phono stages and cartridges are its inaugural tonearms, the Nexus (£4000) and Altus (£1500). Designed and hand-built at the company's Cambridgeshire facility, each 9in (233mm effective length) arm features a rigid bearing system and adjustable 'progressive bias' mechanism, plus 1.3m 5-pin DIN cable that can be optionally fitted with a balanced XLR connection in place of RCAs. The Nexus arm tube is made from rigid titanium while the Altus opts for thick-walled aluminium; both are supplied with a laser-cut, solid aluminium headshell.

AVID Hi-Fi Ltd, Kimbolton, Cambs, 01480 869900; www.avidhifi.co.uk

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Upcoming Events

IMPORTANT DATES FOR YOUR HI-FI DIARY

24-25 MAR	Montréal Audiofest 2023, Hôtel Bonaventure, Montréal; Canada; *https://montrealaudiofest.org*
14-16 APR	Axpona 2023, Renaissance Schaumburg Hotel & Convention Center, Illinois, USA; *www.axpona.com*
18-21 MAY	High End, Munich, Germany; *www.highendsociety.de*
17-18 JUN	North West Audio Show, Cranage Hall (De Vere Cranage Estate), Cheshire; *http://audioshow.co.uk*
29-01 OCT	The UK Hi-Fi Show *Live*, Ascot Racecourse Grandstand, Ascot Berkshire SL5 7JX; *www.hifishowlive.com*

Florida Audio Expo 2023

Words: **Rogier van Bakel** & ***Hi-Fi News*** Pictures: **Rogier van Bakel**

Taking place over the weekend of February the 18th at the Embassy Suites Westshore near downtown Tampa, the fourth Florida Audio Expo – or FLAX – boasted 80 exhibition spaces and proved to be a more worldly affair than previous events, thanks to the presence of brands such as Germany's MBL, Japan's Technical Audio Devices (TAD) and Warwick Acoustics from the UK.

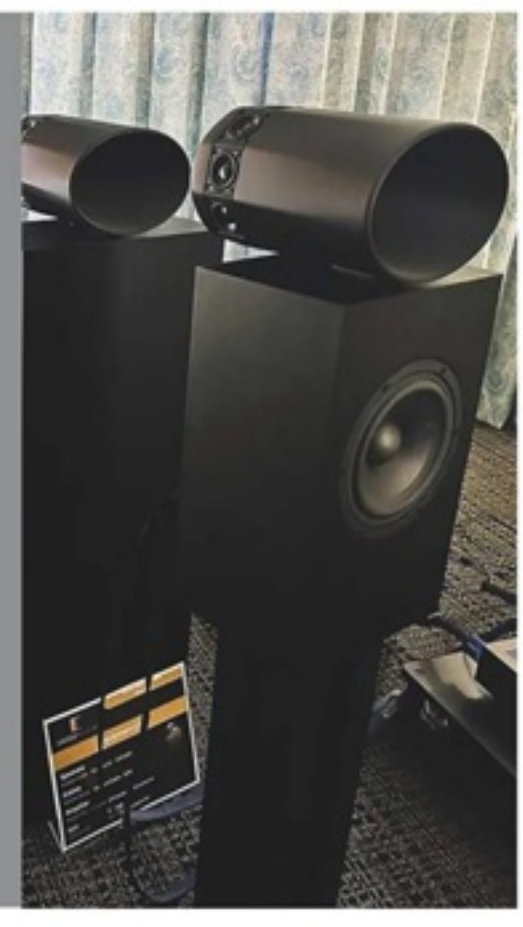
Meanwhile, local distributors like Fidelity Imports and MoFi Distribution showcased elite brands from overseas and closer to home. The Expo in Tampa is known for a relaxed atmosphere that co-founder Bart Andeer describes as 'family-friendly'. Students and spouses are given free admittance with the result that the event attracts a younger crowd than is typical.

Part of Audio Group Denmark, Børresen launched its M1 standmount featuring a planar ribbon tweeter above a bass/midrange driver. The latter boasts a 3D-printed basket, the cavities of which are filled with zirconium powder to aid damping. The M1s were driven by an I-880 amp from stablemate Aavik, said to deliver 200W/8ohm. The source was an Aavik S-580 streamer (top of rack) feeding a D-588 DAC. *www.audiogroupdenmark.com*

Made in Italy, Audia Flight's Three S integrated amplifier (top) is rated at 100W/8ohm and can be retro-fitted with an MM/MC phono board and 192kHz/24-bit USB DAC module. The FL CD Three S CD player (below) has been updated with ES9026PRO DACs offering seven user-selectable digital filters. *www.audia.it*

In the MC Audiotech room, the company's TL-12 speakers were teamed up with a ModWright Instruments LS 300 preamp and KWA 150SE power amp [*HFN* Aug '14]. The speakers combine the drivers from the two-way Forty-10 with a transmission line-loaded 12in woofer. Turntable was a VPI Prime Signature [*HFN* Mar '17] with Shyla cartridge. *www.mcaudiotech.com*

Endow Audio showed two loudspeakers from its flagship Bravura series – the 12 (left) and its smaller sibling the 7 – both of which use identical carbon/copolyester horns on top of their cabinets. This horn features a single 0.9in textile-dome tweeter at its centre, while nine 1.5in midrange drivers ring its rear base. The 7 has a 7in Wavecor bass driver on the baffle, mirrored by a 7in passive radiator on the rear, while the 12 boasts two sealed, side-firing 12in woofers made by Morel. *www.endowaudio.com*



Here's the 30th anniversary version of the Grande Avant Garde loudspeaker from Canadian company Gershman Acoustics, its redesigned base said to improve the low-end performance of the 8in aluminium-coned woofer. A three-and-a-half-way design, the speaker stands 99cm tall and tips the scales at 40kg. As for the electronics used, these included a VAC Master preamp [*HFN* Mar '21] partnered with a Master 300 power amplifier, EMM Labs DA2 DAC and a Wolf Audio streamer. *www.gershmanacoustics.com*

French Canadian harpist Isabeau Corriveau played along to a recording of her own music served up via a pair of Graham Audio LS8/1 speakers. Source was a Bergmann Modi turntable hooked up to a Moonriver 505 phono stage and Model 404 Reference amp [*HFN* Mar '22]. *www.grahamaudio.co.uk*

VAC tube electronics were also pressed into service with Von Schweikert Audio's Endeavor floorstanders which were powered by a brace of Master 300 monoblocks, driven by a Master Signature preamp and phono stage. The front-end alternated between an Alpha DAC Reference Series 3 from Berkeley Audio Design and a VPI Avenger Direct turntable [*HFN* Dec '22]. *www.vonschweikert.com*

Local distributor Fidelity Imports showed Q Acoustics' Concept 300 loudspeakers atop their Tensegrity tripod stands – said to be inspired by the design of suspension bridges. The two-way, reflex-loaded standmount features a 28mm tweeter and 165mm mid/bass driver housed in an enclosure incorporating point-to-point bracing and 'Dual Gelcore' constrained-layer damping. The speakers were wired with AudioQuest cable to a Unison Research Unico Due amp/DAC [*HFN* Feb '19] – a tube/bipolar hybrid Class A design rated at 100W/8ohm. *www.qacoustics.co.uk; www.unisonresearch.com*

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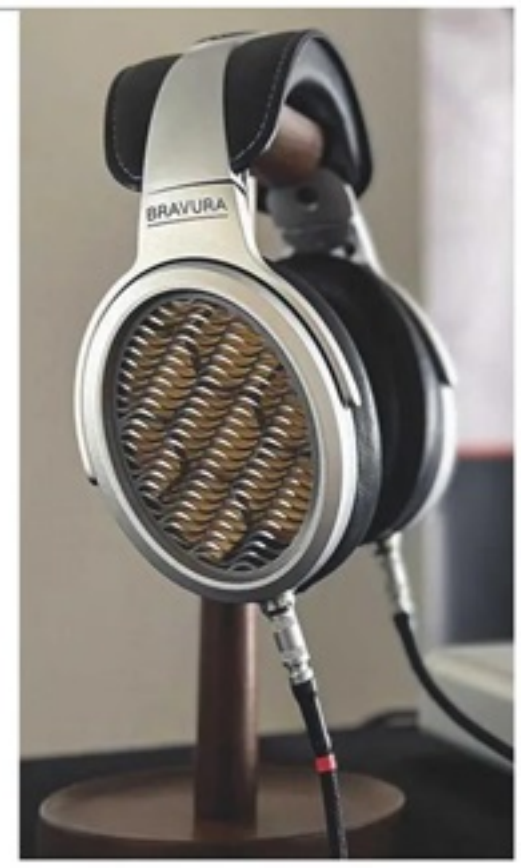
The R5m monitor is part of Perlisten Audio's six-strong R series, a more affordable alternative to its flagship S series [see p29]. All models in the range feature the brand's Directivity Pattern Control array made up of a central silk dome tweeter flanked by twin upper-midrange units. Shown here on its optional stand, the R5m has also been designed to be wall-mounted. *www.perlistenaudio.com*

Alongside its big-ticket Aperio headphone system [*HFN* Nov '19], UK company Warwick Acoustics was showing its more wallet-friendly Bravura electrostatic headphones coupled with a Sonoma M1 amplifier. Available in either silver or black, the Bravura utilises the company's HPEL (High-Precision Electrostatic Laminate) drive unit in a bid for lower distortion, greater maximum sound pressure levels and a wider bandwidth. The ear cushions are made from top-grain Cabretta leather while the weight is given as 403g. *www.warwickacoustics.com*



The SL1 Legend Black Path Extreme preamp from Convergent Audio Technology sees the company improve its SL1 Legend by expanding the use of its thin-film 'Black Path' capacitors in both the audio path *and* the power supply. Measuring 480x310x600mm (whd) the preamp also boasts a 46-position stepped volume control. *www.catamps.com*

There was no shortage of heavy hitters in the spacious Tampa Terrace room where a pair of MBL's Radialstrahler 101 E MkII omnidirectional loudspeakers, complete with mid/treble 'melon' and 300mm alloy-coned bass driver [*HFN* Jun '21], slammed out the sounds on the end of the German marque's 6010 D stereo preamp and 9011 monoblocks. The source of choice was a reel-to-reel tape deck from United Home Audio. *www.mbl.de*

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Based in Tokyo, TAD offers a speaker lineup that comprises three standmounts and three floorstanders, none of which is more imposing than the range-topping Reference 1TX. Bass is taken care of by a pair of 10in woofers while the mids and highs are produced by two coaxially-mounted drivers, measuring 6in and 1.4in in diameter. The company talks about this latter arrangement as if it's a single driver, calling it the CST (Coherent Source Transducer). Electronics included a TAD-C600 preamp [*HFN* Apr '13], TAD-M700S power amplifiers used in a biamped configuration, and a TAD-1000TX DAC. *www.technicalaudiodevices.com*

The flagship speaker in Perlisten Audio's S Series, the S7t [*HFN* Apr '22] sports a Directivity Pattern Control array that consists of a 28mm beryllium tweeter mounted between upper and lower 28mm mid domes. They were driven by a rack of Soulnote electronics comprising an A-2 amp, D-2 DAC and E-2 phono stage. An Innuos Statement music server [*HFN* Jan '20] and Michell Gyro SE turntable completed the system. *www.soulnote.audio*

Mexican company Margules proudly displayed a selection of its tube amps, including the 30th Anniversary U280-sc (top) and i-240 integrated (below). The former claims to be a pure Class A design employing 12AU7 and KT88 valves and can be used in either triode or ultralinear modes via the flick of a switch. The i-240 employs EL34 valves alongside its 12AU7s and is configured to operate in ultralinear mode. *www.margules.com*

Electrocompaniet used the event to introduce a new flagship power amp, the AW 800 M (right of rack), its release marking the French firm's 50th anniversary. Replacing the AW 600 NEMO, the new design is said to kick out 300W into 8ohm and can be configured for stereo, mono or bi-amp operation. *www.electrocompaniet.com*

Next month

HFN reports from Highend Mässan Stockholm 2023

A bit on the side

NICK CAVE IMAGE: BODRUMSURF/SHUTTERSTOCK.COM

Multifaceted musicians have a history of breaking away from their regular groups to make music on the side, but which projects are worth pursuing? **Johnny Sharp** is your guide...

There are times, when in order to keep their relationship alive, a band will agree to allow members to explore new sides of their artistic personality, and make beautiful, exciting music with other musicians, without breaking up their artistic home.

There are any number of reasons why members of a well-established group will want to pursue such a project. Maybe their partners aren't feeling the radical new direction they want to pursue. Or in the case of a band with a well-established sound, it may seem too much of a creative handbrake-turn for their regular fanbase to fully embrace. However, what can seem like a cracking idea when you've just arrived in the studio with your new paramour can soon lose its lustre.

NEW FLAME

When it comes to the 20 side-project albums chosen here, we reckon each and every one burned brightly enough, even if only briefly, to justify the diversion. Indeed, one or two even went on to become as popular as the work of the members' main bands, and win new fans. Oh, and a quick word about our criteria. Although the definition is pretty blurred, we've tried to steer clear of supergroups featuring three or more high-profile members – these will feature in a separate round-up to come.

We're also not including collaborations that went under the artists' names. So this means that McAlmont & Butler or Nick Cave & Warren Ellis don't qualify, whereas Grinderman do, because this side project adopted a name all of its own.

EAGLES OF DEATH METAL

Death By Sexy

(Downtown, 2006)

Former Kyuss man and Queens Of The Stone Age linchpin Josh Homme took the opportunity to have a lustier, rockabilly-influenced bit of fun with his moustachioed mate Jesse Hughes, under a name that seemingly had barely any reflection on their music. But who cared? You couldn't deny the infectious, groovy sense of fun fizzing from tracks such as the turbo-charged 'I Want You So Hard (Boy's Bad News)' and the lascivious, low-slung boogie

'I Like To Move In The Night'. Jesse Hughes' what's-wrong-with-being-sexy falsetto, like an amphetamine-addled Bee Gee, adds extra urgency to a set of scuzz-meets-glam stompers.

TOM TOM CLUB

Tom Tom Club

(Sire, 1981)

Perhaps as a reaction to the famously cerebral art-rock style of their alma mater Talking Heads, the husband-and-wife rhythm section took time out to create a simpler (but still wryly clever) set of songs based around simple electronic riffs and beats and gently sardonic lyrics. While breakout hit 'Wordy Rappinghood' affectionately appropriated the burgeoning hip-hop sound of their native New York, timeless grooves

like 'Genius Of Love' also channelled a P-Funk sense of infectious fun while 'L Elephant' drew on the same world music influences informing their other band. It's irresistible.

GORILLAZ
Plastic Beach
(Parlophone, 2010)

Whether or not you ever bought into the idea of Damon Albarn and Jamie Hewlett's collaboration being the work of a cartoon band, it has proved a fertile outlet for the former's more eclectic ideas. The Blur man's expert way of crafting a pop tune was never in doubt, and they got admirably ambitious here on the second album, with help from a diverse cast of characters ranging from Snoop Dogg to Lou Reed and Mark E Smith. Themes of consumer culture laying waste to the planet recurred throughout, but more importantly, deftly turned electro pop grooves and elastic hip-hop beats kept the fun quotient high.

BROKEN BELLS
Broken Bells
(Columbia, 2010)

Shins frontman James Mercer took an unpredictable sidestep in hooking up with renegade hip-hop producer Brian 'Danger Mouse' Burton here, and his bravery was rewarded. Familiar tones of yearning indie-rock on tracks such as 'The High Road' were offset by Burton's arresting synth doodles and the pair concocted a beautifully lysergic feel to tracks like 'Your Head Is On Fire'. Meanwhile, the sweet sashay of 'The Ghost Inside' was sublime.

A PERFECT CIRCLE
Thirteenth Step
(Virgin, 2003)

While Tool frontman James Maynard Keenan sang for A Perfect Circle, it wasn't initially seen as his side project so much as the vision of Tool guitar tech Billy Howerdel – with Keenan guesting. But by the time they made this second album, the Tool man's creative input had increased, which led to friction, though this certainly didn't harm the end product, as viscerally heavy prog-informed grunge textures underpinned atmospheric melodies and darkly compelling lyrics.

THE BREEDERS
The Last Splash
(4AD, 1993)

A band conceived on a drunken night out when The Pixies were touring with Throwing Muses went from being Kim Deal's side hustle with Tanya Donelly and Perfect Disaster's Josephine Wiggs to the bassist-turned-frontwoman's main event after she split with Black Francis and co. And that's when they stepped up a gear creatively, with the addition of Deal's sister Kelley and a second album that memorably peaked with one of the '90s truly great alt-pop singles, 'Cannonball'.

LAST SHADOW PUPPETS
The Age Of The Understatement
(Domino, 2008)

Some side projects seem to allow those projecting to explore areas of their creative selves that would represent too radical a departure under their usual trading name. This collaboration between Arctic Monkey Alex Turner and Rascals frontman Miles Kane is a case in point. The Walker-sings-Brel feel of the opening title track and 'Separate And Ever Deadly' are convincing highlights, but their symphonically enhanced take on '60s pop is a truly compelling one throughout.

THE DUKES OF STRATOSPHEAR
25 O'Clock
(Virgin, 1985)

In an age before the Internet made obscure psychedelia accessible to anyone who could use a search engine, XTC's Andy Partridge offered a delightfully daft take on the surrealist side of trip-pop when his post-punk contemporaries were focusing on broad strokes, authenticity-on-sleeves and arena rock bombast. Barrett-esque whimsy such as 'The Mole From The Ministry' outpsyched the real thing. Absurdist pop the way you always hoped it would be.

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CAT'S EYES
Cat's Eyes

(Polydor, 2011)

When Horrors singer Faris Badwan and London-based Canadian classical soprano Rachel Zeffira bonded over a shared love of '60s girl groups, the idea was soon hatched to make music together. As well as the richly emotive melodies of the music that inspired it, their homage to the sounds of Joe Meek, Phil Spector, The Ronettes *et al* was shot through with enough idiosyncrasies – garage-y distortion, avant-garde classical tinges and gothic shadows – to captivate.

ELECTRONIC
Electronic

(Factory, 1991)

Bernard Sumner will always be synonymous with New Order [see p82], but the debut album he made with Johnny Marr as Electronic is good enough to stand alongside their output. Guest vocals from Neil Tennant on single 'Getting Away With It' tip this perilously close to supergroup status but as New Order were still very much a going concern and Marr had taken a have-guitar-will-contribute to band membership since leaving The Smiths, they get special dispensation here.

GRINDERMAN
Grinderman

(Mute, 2007)

Over the years Nick Cave's solo oeuvre has mellowed in terms of sonic decoration, but for those Cave fans who missed the scabrous snarl of his Birthday Party output and early solo work, this sideline represented a refreshingly filthy rekindling of old fires. From the bar-room hollering of opener 'Get It On' through the howling feedback-scarred scuzz and impotent rage of 'No Pussy Blues' to the gnarly organ psych of 'Depth Charge Ethel', it felt like a welcome breath of foul air.

THE POSTAL SERVICE
Give Up

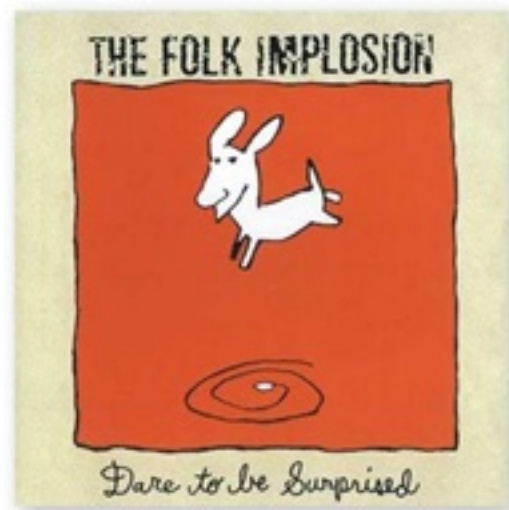
(Sub Pop, 2003)

Although Death Cab For Cutie frontman Ben Gibbard only made one album under this partnership with producer Jimmy Tamborello and guest vocalist Jenny Lewis of Rilo Kiley, it attained cult status, to the point where Gibbard was persuaded to resurrect The Postal Service for a tour in 2013. The combination of wistful melodies and dreamy, love-lorn vocals offset by subtly infectious synth motifs gripped far more people than Gibbard probably ever envisaged.

THE SMILE
A Light For Attracting Attention

(XL, 2021)

We could have been forgiven for expecting something jazz-leaning and experimental when Thom Yorke and Jonny Greenwood joined forces with fusion-informed Sons of Kemet drummer Tom Skinner. Instead they took an excursion closer to home, something that could have been presented as a companion piece to classic latter-day Radiohead output such as *In Rainbows*. Left-footed funk grooves like 'The Opposite' sat next to spiky rockers such as 'You Will Never Work In Television Again', and hypnotised meditations like 'Pana-vision' alongside the sweetly elegiac lament 'Free In The Knowledge'.



THE FOLK IMPLOSION
Dare To Be Surprised

(The Communion Label, 1997)

When Lou Barlow from US indie bands Sebadoh and (before and later) Dinosaur Jr heard a demo by librarian and sometime songwriter John Davis, he saw a chance to do something outside the grunge-textured work of his main group. The Folk Implosion peaked on this second LP, characterised by agreeably lo-fi indie-rock and sardonic lyrics that also took in touches of compellingly droney bedsit krautrock. Surprised? You could certainly say so.

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LS-204 XL Micro Air, Editor's Choice, Hi Fi News, February 2021

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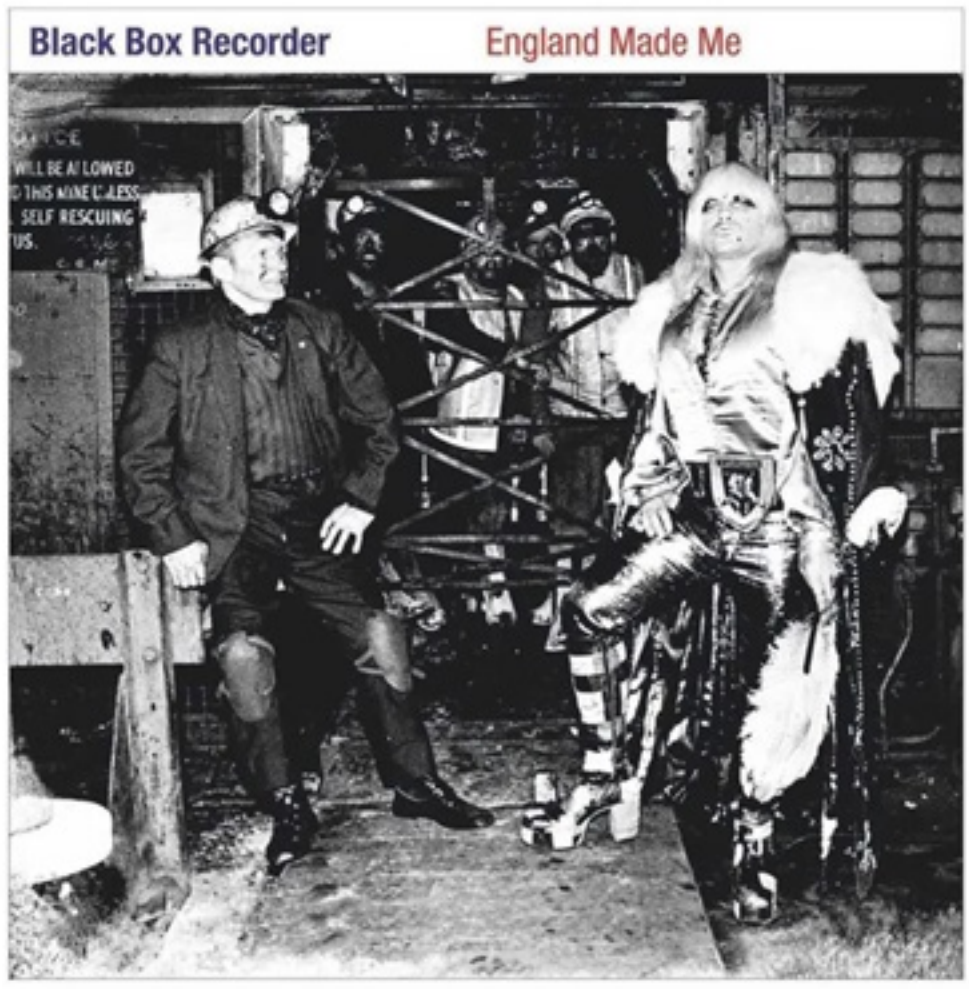
BLACK BOX RECORDER
England Made Me
(Chrysalis, 1998)

While he was with '90s British indie band The Auteurs, you always got the impression that Luke Haines would have liked to have done something a little more confrontational. Before they released their final LP in 1999, he found an outlet for his misanthropy, first in Baader Meinhof (whose self-titled 1996 album narrowly missed this list) and then with this more enduring trio. Lead single 'Child Psychology', featuring Sarah Nixey's startling spoken-word vocal in character as a selectively mute girl, is the highlight of a singular debut. 'Life is unfair', went the memorably brutal chorus. 'Kill yourself or get over it.'



WARMDUSCHER
Tainted Lunch
(The Leaf Label, 2019)

Although they once described themselves as 'a match made in hell between Fat White Family and Paranoid London' with Saul Adamczewski and Lias Kaci Saoudi from the former act in their number, these South London sleazeballs took on a life of their own. On this album, Iggy Pop and Kool Keith guest, but the fact they can't steal the show reflects the infectious qualities of the idiosyncratic songs recalling The Fall, warped funk and grimy synthpop.

DEPARTMENT OF EAGLES
In Ear Park
(4AD, 2008)

When Daniel Rossen joined Ed Droste as co-frontman of Grizzly Bear in 2004, he shelved the group he formed with college mate Fred Nicolaus as he took a more prominent role in GB. So by the time he felt the need to scratch a different artistic itch and rehabilitate Department Of Eagles, he was able to enlist the help of fellow Grizzlies Chris Bear and Chris Taylor to create an ambitious, symphonically enhanced chamber pop record full of sweet melancholy and lustrous longing.

THE FIREMAN
Electric Arguments
(One Little Indian, 2008)

If anyone doubted the depths of Paul McCartney's versatility as a songwriter – well, they're an idiot. His experiments with producer Youth as The Fireman spawned two sets of ambiently inclined electronica in 1993's *Strawberries Oceans Ships Forest* and 1998's *Rushes*, but this third outing has stood the test of time best thanks to Macca's traditional songcraft on tracks such as 'Sing The Changes' and 'Sun Is Shining' before he mines his psychedelic side on 'Lifelong Passion'.

MSTRKRFT
The Looks
(Last Gang, 2006)

Jesse F Keeler from Death From Above 1979 propped up his bass guitar and ditched the thunderous grunt of the band he made his name with to do acclaimed remix work (for The Gossip, Bloc Party, *et al*) under the MSTRKRFT banner alongside DFA producer Al-P. When the pair turned to making their own records, they showed a similarly stylish touch. House and techno textures were offset by Daft Punk-y grooves and Prince-tastic party funk in a set designed for the dancefloor.

CHRIS GAINES
Garth Brooks In… The Life Of Chris Gaines
(Capitol, 1999)

Country superstar Garth Brooks rather bizarrely chose to adopt a whole new persona to explore a grungier, more rock-oriented side of his musical character, with the result that many genre-loyalist fans rejected it. Yet ironically, if he'd released songs under his own name as good as the wistful 'That's The Way I Remember It', the folky 'It Don't Matter To The Sun' and the Beatle-esque 'Maybe', they would probably have lapped it up.

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S4b, Hi Fi News, June 2022

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R7t, Hi Fi News August 2022

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You hold in your hands the world's oldest and most respected hi-fi magazine – *Hi-Fi News* – where heavyweight audio engineering is our stock in trade. All our review products are typically subject to a one-month test process from shipping, unpacking, installation, photography, lab work, extended listening, disassembly/packing and collection. This practice was maintained right through the pandemic period, with full Covid biosecurity adding to the logistical complexity of our four-week issue schedule. But we did it... never missing one issue of the magazine or compromising the '*Hi-Fi News* Pledge':

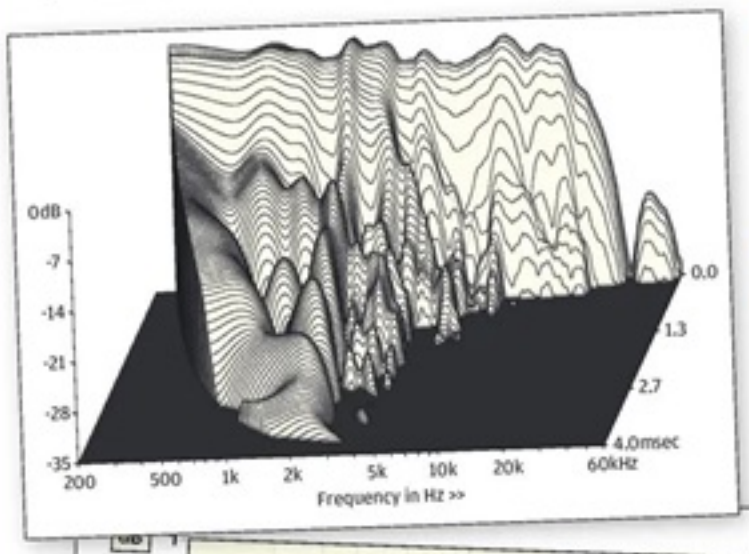
1. Our hardware reviews are never brief 'hands on' experiences of a product from a press conference, brand-led demo or distributor's back room spun up into a four or five page article [see pic, right].

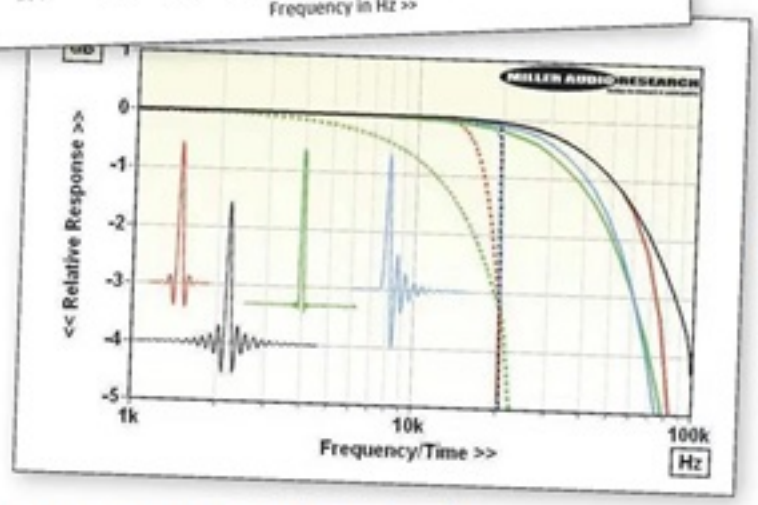
2. Products reviewed in *Hi-Fi News* already have secure distribution and retail channels in the UK. So readers *should* be able to arrange their own auditions if suitably inspired!

3. All review samples are shipped to and installed at our main facility. They are photographed by us (unless stock shots conform precisely to our template) and lab tested to a uniquely world-class standard before listening begins...

4. We believe in high quality investigative journalism by experienced writers and editors – we ask questions, we do our research and we make truly independent evaluations. We do not release reviews to brands for 'fact checking' or other modification prior to publication. They read it when you read it.

5. Above all we respect our readers. You demand the best reviews informed by decades of experience, product knowledge and technical expertise. We endeavour to live up to that expectation.





LEFT: Innovative, research-based test & measurement – with exclusive colour 'data visualisation' – underpins every review in *Hi-Fi News*. In each issue you will discover performance-determining facts that are unique to our reporting

ABOVE: Kevin Akam of distributor Signature Systems breaks open the packaging of PS Audio's new aspen FR20s, shipped into the UK for *Hi-Fi News*' world exclusive review [p40]

IN THIS ISSUE...

LEFT: Only *Hi-Fi News* provides in-depth reviews of pristine vintage gear, pic'd and tested inside and out. Here's a look under the alloy top plate of B&O's classic 4002 turntable [p120] revealing the bearing and main PCB

RIGHT: Real hi-fi, reviewed for *real* (something of a mantra here!) as PS Audio's new aspen FR20s [p40] are pictured running-in under the control of a Constellation Centaur II Stereo amp [*HFN* Feb '23] with Transparent cabling

Floorstanding three-way ABR-loaded loudspeaker
Made by: PS Audio, Boulder, Colorado
Supplied by: Signature Audio Systems
Telephone: 07738 007776
Web: www.psaudio.com; www.signaturesystems.co.uk
Price: £19,995

PS Audio aspen FR20

Less than a year after PS Audio launched its inaugural loudspeaker, this flagship floorstander has already inspired a trickledown sibling. Will the FR20 unseat the FR30?
Review: **Andrew Everard** & **Paul Miller** Lab: **Paul Miller**

The advice given by Apple's Steve Jobs to 'Start small, think big' is pretty sensible, going hand in hand with that old saw about not trying to run before you can walk. That recommendation seems to have eluded Colorado-based company PS Audio, which launched its speaker line last year with the big aspen FR30 [*HFN* Jun '22], arriving in the UK with a price tag now running at £30,000, and clearly aiming high straight out of the box.

Not only that, but it also threw away much of the high-end speaker rulebook, debuting a tall, slender column apparently 'floating' on an integral stand, and with an unconventional drive unit complement. The FR30 mixes planar magnetic mid and treble drivers, a quartet of bass units backed up by four passive auxiliary bass radiators, two on each side of the cabinet, plus a rear-firing tweeter by way of HF 'ambience control'.

Now, with the arrival of the second aspen model, the £19,995 FR20, the company has started backfilling its lineup with a smaller, more room-friendly model and, as company boss Paul McGowan reveals [see PM's sidebar on p45], more to come in this range. But the FR20 isn't just a shrunken, simplified version of the original for, as we'll discover, while there are significant similarities, there are also changes to the technology to suit a design that's just a little less imposing.

MARKET DISRUPTOR

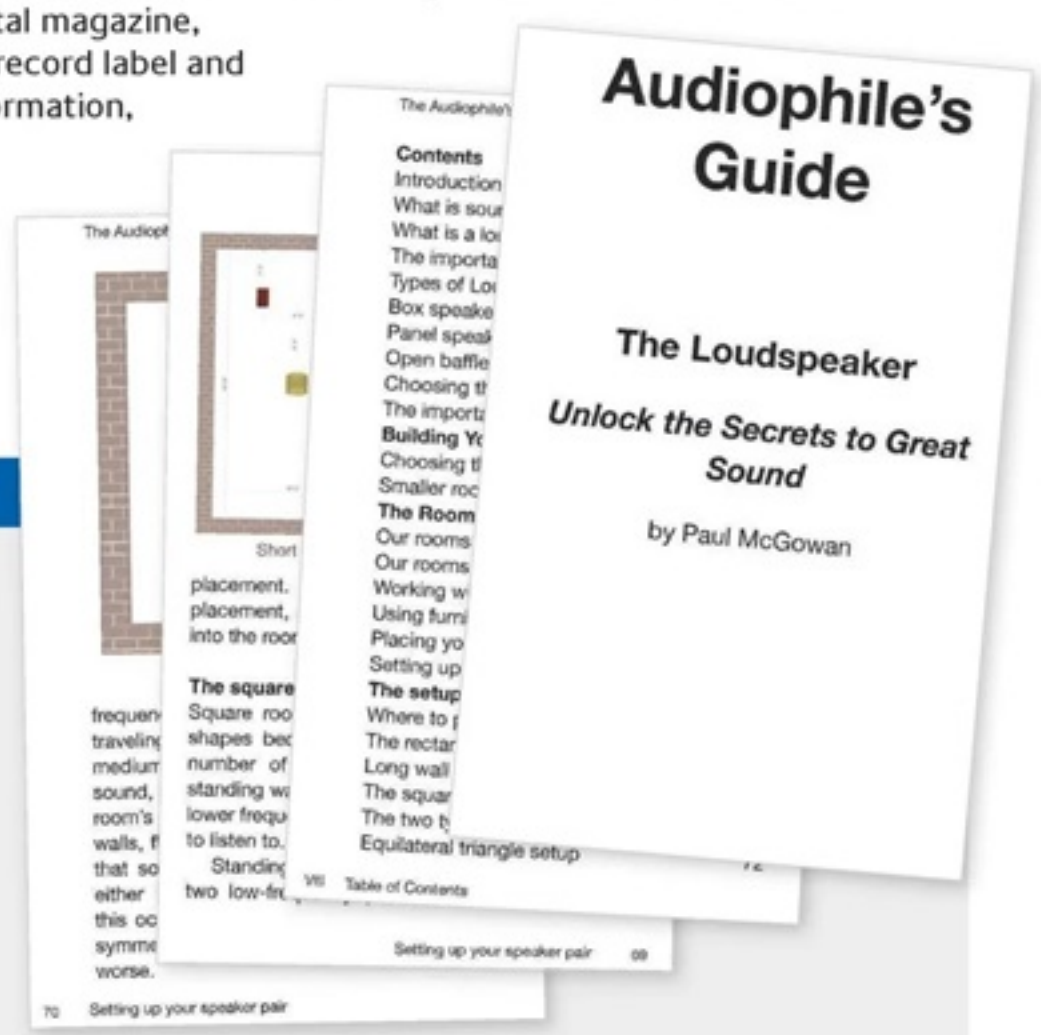
As we'll also find out, this more compact design – albeit standing just over 1.28m tall and weighing a hefty 60.3kg – is every bit as spectacular an introduction as its larger stablemate, and likely to create just as significant a stir in its market sector. Our FR30 review suggested it was looking like a real high-end hi-fi bargain, despite its size and price, but the FR20 is even more so, and brings the range closer to McGowan's stated intent of bringing exceptional sound 'to people with real incomes and homes'.

OK, so PS Audio is hardly a hi-fi start-up... Marking its 50th anniversary this year, it's long been making high-quality audio electronics, from digital components to amplification, and says that the aspen speaker concept has been bubbling away in the background for most of that time. Indeed, the development of the speaker line has been well-documented through the daily blog written by CEO McGowan, which is part of a policy of outreach (or, if you're cynical, marketing) also taking in newsletters, its own digital magazine, the Octave record label and no shortage of 'how to' information, such as the 165-page *The Audiophile's Guide – The Loudspeaker* set-up book [see boxout, below]. It's supplied with the aspens along with an audio disc to aid the process.

> 'PS Audio reveals details of a four-strong aspen range'

The FR20, while obviously a different design from the range-topping model, shares much of its elegance. Retained from the FR30 are the 2.5in/63mm treble unit and the 10in/25cm midrange mounted above it, each using flat-panel diaphragms made from ultra-light Teonex, and driven front and back via neodymium 'motors' in a planar magnetic configuration. The crossover points are taken from the FR30, with the midrange working from 400Hz up to 2.5kHz where the tweeter takes over. However, in-house driver production has improved tolerances, enabling some subtle re-voicing of the crossover circuit. ⟳

SPEAKER SETUP



Subtitled 'Unlock the Secrets to Great Sound', Paul McGowan's *The Audiophile's Guide: The Loudspeaker* will show you how best to set up your system's speakers, but then the manual supplied with the aspen FR20 has that more than covered off. Instead, partnered with the Octave Records release of the same title [OCT0021], this comprehensive softback book starts with the fundamentals of how sound is created and reproduced, then takes the reader through the basics of speaker design and construction. It continues with an exhaustive – and sometimes exhausting – description of how best to install your speakers, how they interact with your room, and how you should optimise the sound they produce. I wouldn't for a moment suggest this is a book to read straight through at one sitting, and neither do you need to study every word in order to set up a pair of speakers correctly, but McGowan's easygoing style makes this both an informative read into which to dip, and a useful reference guide.

hi-finews
OUTSTANDING
PRODUCT

The shorter enclosure here brings the tweeter down to around 91cm from the floor, a level better suited to smaller rooms and placing less pressure on the need for a relatively upright listening posture. So these are speakers before which you can slouch while you listen, rather than having to sit up and take notice!

And the removal of that rear-facing 'space' tweeter? PS Audio is frank that its absence, and the deletion of its crossover shelving control and associated settings on the rear panel was 'a means to simplify and streamline the design and lower the cost'. And when listening to the FR20s, one is reminded of the Gilbert & Sullivan line from *The Mikado* that 'They'll none of 'em be missed', so open and spacious do these speakers sound.

So far then, the same but smaller, but it's in the bass section of the FR20s that the most changes are apparent. For a start there are just two bass drivers in each speaker, partnered with a pair of flat-surface ABRs, but while these side-radiating bass tuning devices are the same size as those on the FR30 model – and just as hollow-sounding when you tap them – the drivers themselves are not just fewer, but of a different design.

> 'The flagship BHK M600s would be a good match'

Whereas the flagship FR30 features aluminium cones, the FR20's woofers use a composite design with carbon-fibre skins enclosing a Rohacell foam core, this lightweight material also being used by a number of other speaker manufacturers.

Chris Brunhaver, PS Audio's Senior Loudspeaker Design Engineer, explains that this enables 'a lower mass cone… as light as thin pressed paper cones but with added stiffness'. He adds that 'we moved to a single spider of the same profile, lowering its mass and softening the suspension to keep the same low resonance frequency'. Also, while the near-5.5kg magnet and cast chassis structures have been carried over, 'we switched to an aluminium coil (versus copper in the FR30 woofers) for lower mass and motor force. Aluminium has higher resistance, so the coil has fewer turns, and an 8ohm coil fits nicely in the gap we had for the 4ohm copper coil of the FR30'.

SIBLING RIVALRY

The upshot of all this is a claimed gain of about 2-2.5dB in woofer output, pushing up the quoted sensitivity of the new speaker to within 1dB of its bigger brother at 87dB/1W/1m [see PM's Lab Report, p47]. As important a design target, the FR20 is also claimed to deliver the same bass response and (flat) impedance characteristics as the FR30 [see PM's boxout, p43].

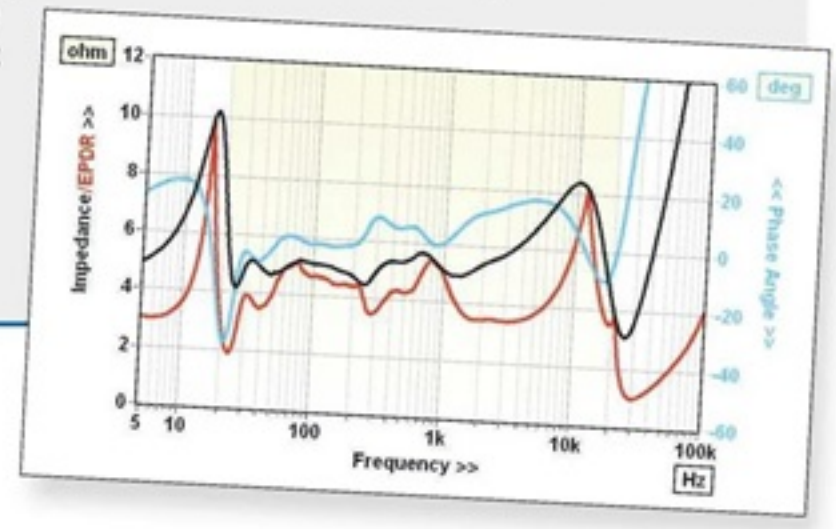
The industrial design is by Canadian-based Studio 63, which also penned the FR30. In this case the main enclosure is a one-piece design, with none of the adjustability of the two-piece FR30, and is built from heavily-braced MDF finished with 20 coats of hand-rubbed piano-grade lacquer. There's a choice of Pearl White or Sable Black finishes, incidentally. The planar magnetic tweeter is attached to the rear

LEFT: Flagship FR30 has the same planar mid/treble drivers, in a separate top cabinet, while a total of four 200mm alloy-coned woofers are joined by pairs of 255mm ABRs on each side

RIGHT: The FR20 is supported on the same alloy 'short stand' but the cabinet houses a combination of two 200mm carbon-fibre/Rohacell sandwich coned bass drivers and one 255mm ABR on each side

PLAYING FLAT

For both the aspen FR30 and FR20, PS Audio has engineered its crossover to achieve a 'flat impedance curve', specifying a nominal 4ohm load with a 3.5ohm minimum. In practice, the FR20's impedance hits an 'easier' minimum of 4.1ohm at the frequency extremes of 26Hz and 20kHz [black trace, inset Graph] just as its modest –37°/+17° swings in phase angle [blue trace] occur at 22Hz and 4.9kHz, respectively. However, while the impedance is kept to tight 4.2-8.4ohm limits through the audio range, there are larger swings up to 10.2ohm/16.8Hz and down to just 3.1ohm at an ultrasonic 25.7kHz. Higher still, a +56° phase angle delivers a tough 0.98ohm EPDR at 29.8kHz [red trace] where, fortunately, musical energy will likely be much reduced. The FR20's EPDR (equivalent peak dissipation resistance) swings between 1.9ohm/23Hz to 8.1ohm/12kHz with a mean of 4.1ohm from 20Hz-20kHz, so while the load is indeed quite 'flat' it is not especially 'easy'. Incidentally, the slight 'roughness' in the traces at 40Hz-200Hz correlates with the resonant modes detected in the nearfield measurement of the flat and 'hard-surfaced' 255mm ABRs [see Lab Report, p47]. PM



of the thermoset resin front baffle, the latter with a shaped waveguide to control the dispersion of the midrange driver mounted, like the woofers, to the main structure.

Separate magnetically-attached grilles are provided for the top and bottom portions of the cabinet, as illustrated in our pictures, while the substantial alloy base comes with a set of adjustable milled brass feet. These include detachable spike tips and plastic inserts for use on hard surfaces, plus a set of sliders for ease of movement while the speakers are being set up. PS Audio provides a set of nifty Allen keys for adjustment in addition to a set of jumpers for single-wiring the bi-wire terminals on the rear of the speakers [see p47].

DIAL-IN FOR DETAIL

Even without the extra speaker set-up book, the basic instruction manual is both informative and comprehensive, so you'll find it easy to get the FR20s installed and dialled-in. That said, your dealer should be fully prepared as the speakers come out of the box upside-down, and it's definitely a two-person job to get them turned over and placed [see pic, p39]. The manual suggests they 'should be toed-in a little, aimed at a point in space about 3ft/1m behind the listening position'.

However, you're still going to need a bit of space in your room, as a 3m distance from seat to speakers will require the cabinets to be around 2.4m apart, with at least 0.5m to the wall behind the speakers, and a metre or so from the side walls if the FR20's powerful bass is not to become a problem. A little extra toe-in will further tighten the image, but with some possible loss to the sense of space – so a deal of 'suck it and see' is required.

Given the level at which they're pitched, these speakers aren't going to be used with a budget integrated amp, so some decent clean power is your best bet. They thrived on the end of the Constellation Centaur II Stereo power amp [*HFN* Feb '23] in PM's listening room, and their sound suggested they'd be a good match for amps such as the Musical Fidelity NuVista PRE/PAS quartet [*HFN* Mar '23] or perhaps the Rotel Michi P5/M8 [*HFN* May & Oct '20] and certainly PS Audio's own flagship BHK M600 monoblocks [*HFN* Dec '22].

CHIP OFF THE BLOCK

What's apparent in very short order is that the FR20s give away very little when compared with the flagship FR30s, heard here in the same room with the same ancillaries. The instant impression is of a free-breathing sound, with weight and bags of detail, plus fine imaging with impressive width and depth. That slight toe-in optimises both their tonal and spatial qualities, for example with the Fred Hersch/Esperanza Spalding *Alive At The Village Vanguard* [Palmetto Records PM2007], where the slightly 'big' piano impression heard when the speakers are

LEFT: Planar magnetic 250mm mid and 64mm tweeter both feature Teonex diaphragms, the former mounted on a baffle *behind* the thermoplastic 'fascia'. Pearl White and Sable Black finishes are offered with matching grilles

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The impression of sound with eyes and ears

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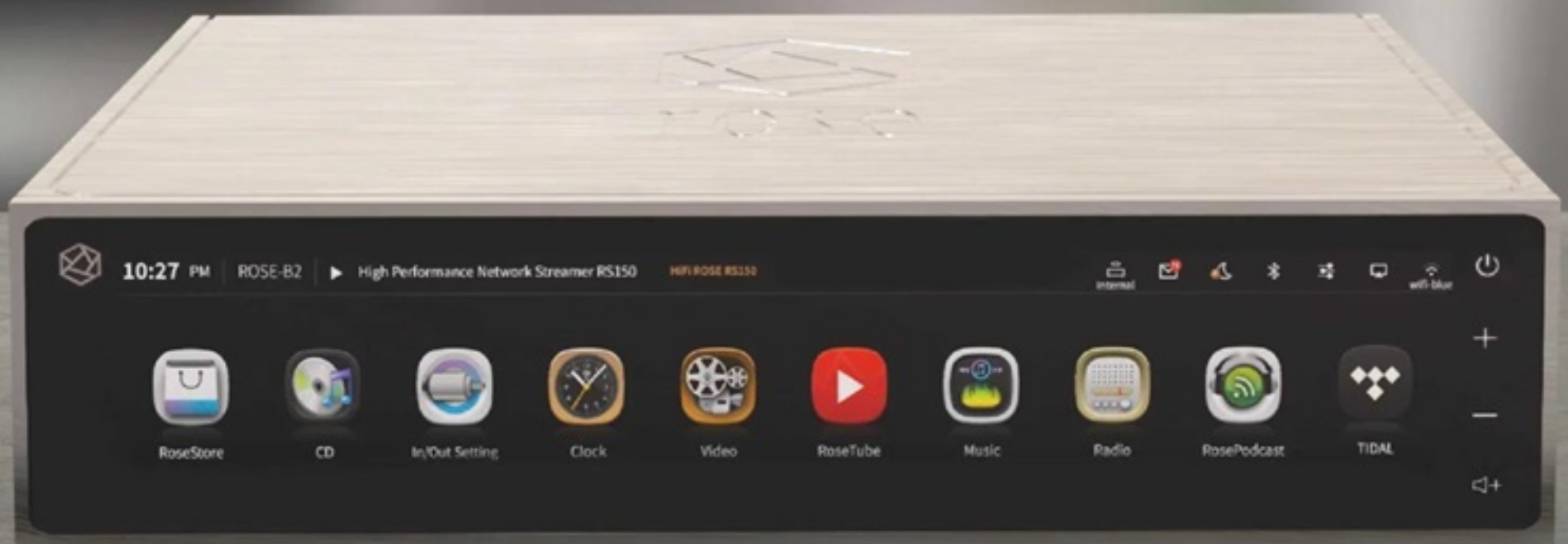

RS150B

A ROSE FOR YOUR LOVE OF MUSIC

The RS150B from HiFi Rose is a true high-end device. From its elegant, sturdy aluminium construction through its extensive DAC functions and on to its bespoke transformer design – no element of this prestigious product is left to chance. This high performance network streamer is powered by the custom ROSE OS 4.0 that boasts a feature set second to none. With integrated Shazam support and shareable playlists gathered from multiple streaming services as well as a dedicated volume offset for your sources, the RS150B with the latest Rose OS 4.0 is the perfect way to show your love for music.

ovforums EDITOR'S CHOICE
December 2021

EISA Best Product 2021-2022 HIGH-END MUSIC PLAYER HiFi Rose RS150
August 2021

hi-finews HIGHLY COMMENDED
May 2021

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LEFT: Side view illustrates how the FR20's cabinet is significantly deeper than it is wide. Each side hosts a flat 10in/255mm ABR with a hard surface skin of carbon-fibre

firing straight down the room is turned into a sharper, better focused image. Toed inwards, Spalding's voice sounds rock-solid ahead of Hersch's instrument, with both performers having fine presence, and the ambience of the audience rendered with a realistic warmth.

Similarly with another accompanied voice – Jodie Devos on her *And Love Said* set [Alpha Classics ALPHA668], and especially the closing cover of 'You Take My Breath Away' – there's that same mixture of an explicit view of the singer with huge character in the voice and every breath clearly taken, bags of space around the performers and total focus. It's as thrilling a hi-fi performance as it is musically satisfying.

But the FR20 isn't a one-trick pony, best heard with delicate audiophile-quality recordings. Play Varèse's 'Ameriques' from the San Francisco Symphony and Michael Tilson Thomas's *American Mavericks* [SFS 821936-0056-2-0] and this shows the speakers' ability to image a large orchestra. The depth back across the instruments is especially impressive, along with the dynamics of percussion and the sheer spaciousness of the performance, not to mention the distant police siren!

LIVE ACTION

It's a dramatic, thrilling sound, and that's also true of the snarl and power of 'Jailbreak' from the remastered super deluxe release of Thin Lizzy's *Live And Dangerous* [UMC/Mercury/Vertigo 0819035]. The speakers simply unleash this superbly-produced collection of live recordings from the mid '70s, while the more downbeat 'Dancing In The Moonlight' has stunning clarity by live album standards, with the sax sounding crisp and clean and the band playing tight as ever. There's just so much riveting, edge-of-the-seat vitality on show here.

That control and punch, allied to speed and definition, is totally suited to the close detailing and found sounds of Steve Reich's 'WTC 9/11'– here on the MIVOS Quartet's recent collection of Reich's quartets [DG 4863385]. The speakers bring out all the passion of the piece while maintaining the dramatic bite of the instruments and the way they echo and comment on the speaking voices. It's chilling and emotional, as it should be, and there's superb body to the cello as well as the high strings.

> 'There's a lot going on in Genesis's "I Can't Dance"'

Turning to PS Audio's own Octave Records *The Art Of Hi-Fi: Bass* [Octave OCT0030; DSD128, see p94], Seth Lewis's take on 'How Deep Is The Ocean' has glorious growl and definition in the lower frequencies, as one might expect from a collection designed to showcase a system's bass quality. The organ recordings on this compilation have not just complete room-shaking ability but also a fine sense of the 'presence' of the

PAUL MCGOWAN

For our review of PS Audio's flagship aspen FR30 [*HFN* Jun '22] we spoke with planar/ribbon driver specialist and PS Audio's Senior Loudspeaker Design Engineer, Chris Brunhaver, who elaborated on the challenges of integrating planar, moving-coil and ABR driver technologies into one unified speaker solution. Following the launch of the FR30 the development programme at PS Audio has been focused around scaling these core technologies into smaller form factors, while retaining as much of the performance and 'sonic signature' as possible.

Talking exclusively to *Hi-Fi News*, PS Audio's CEO Paul McGowan revealed details of a four-strong aspen range, all featuring the same planar magnetic tweeter. 'We've also developed a smaller 200mm planar magnetic midrange driver with a high 96dB/1W sensitivity and covering nearly the same bandwidth', says Paul, 'together with a new 180mm bass driver that uses the same advanced magnet structure as in our larger models'.

Bass is augmented with new 6x9in 'racetrack-shaped' ABRs with carbon-fibre/Rohacell/fibreglass diaphragms designed for use in smaller and slimmer cabinets. The latter make more extended use of PS Audio's thermoset fiberglass composite to simplify the enclosure construction. 'The aspen FR10 will follow', Paul announces. 'It's a slim, compact three-way with a TMWW configuration and three rear-firing ABRs. The aspen FR5 is a two-way standmount with optional matching stand and a single rear-firing ABR.' You read it here first, folks! PM

The Master.

"MAGICAL EXPERIENCE—it's simply magnificent."

Andrew Everard / Paul Miller | **HiFi News**

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LEFT: Split 400Hz crossover allows for separate bass [bottom left] and mid/treble [bottom right] 4mm input terminals. The planar mid and treble drivers crossover at 2.5kHz

of a massive sound and superb control again, and this is also readily apparent with the highly detailed mixes and deep, throbbing beats of Bonobo's *Fragments* set [Ninja Tune, ZENDNL 279; 44.1kHz/24-bit]. The at-times-ethereal samples, set against those driving basslines and rhythms, are delivered effortlessly by these FR20 floorstanders, while the excellent soundstaging and palpably solid imaging develops a near-3D listening experience.

X-RAY SPECS

With a less subtle recording – there's a lot going on in Genesis's 'I Can't Dance' from 2021's *The Last Domino?* compilation [Virgin 3542876] – it's 'all up there on the screen' thanks to the clarity, scale and punchy sound of the aspen FR20s, which bring the remastering up like viewing a familiar picture through freshly polished specs. This is a pair of speakers through which to relish familiar recordings anew, and also rediscover hidden treasures in your music collection.

For example, the sheer simplicity and superb musicianship of Nat King Cole and his trio's *After Midnight* [Capitol Records W-782] just immerses you in the velvety tone of the great voice on this 1956 mono recording, tempting you to explore new releases. In short, PS Audio's new FR20s are the exception to prove Steve Jobs' rule... ⏻

instrument in the recording venue. Listening to Kendrick Mervine's performance of the Bach 'Toccata In D Minor', and the speakers' ability to reveal those big pipes energising the air is never in doubt, and neither is the way they resolve the notes hanging in space, decaying to a deep silence, full of anticipation.

With the ultra-vivid sound of the Sinfonia of London/John Wilson recording of Elgar's *Introduction And Allegro* [Chandos CHSA5291; 96kHz/24-bit download], the aspen FR20 speakers sound immediate and powerful with the drama of the opening, but also do a fine job with the subtleties of the scoring, despite the sometimes 'maximum attack' playing here. It's that combination

HI-FI NEWS VERDICT

The inaugural aspen FR30s were hugely impressive, but the smaller, more affordable and easier to accommodate FR20s are an even more sensational achievement. They still place demands on your room and partnering electronics, but these mighty, musical and marvellous speakers set a new benchmark in their sector and, arguably, fix the standard even more ambitious designs now have to beat.

Sound Quality: 90%

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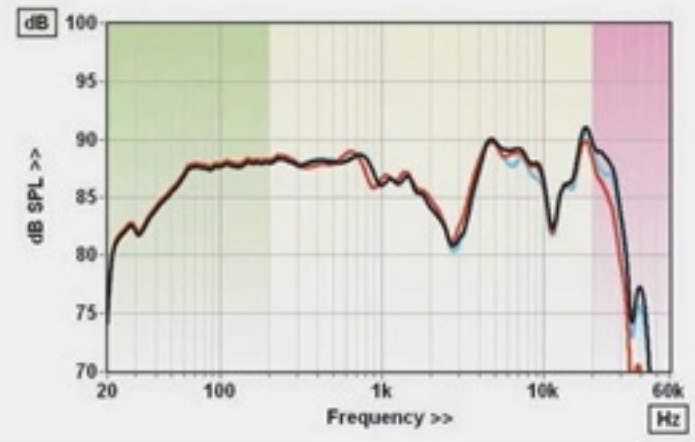
LAB REPORT

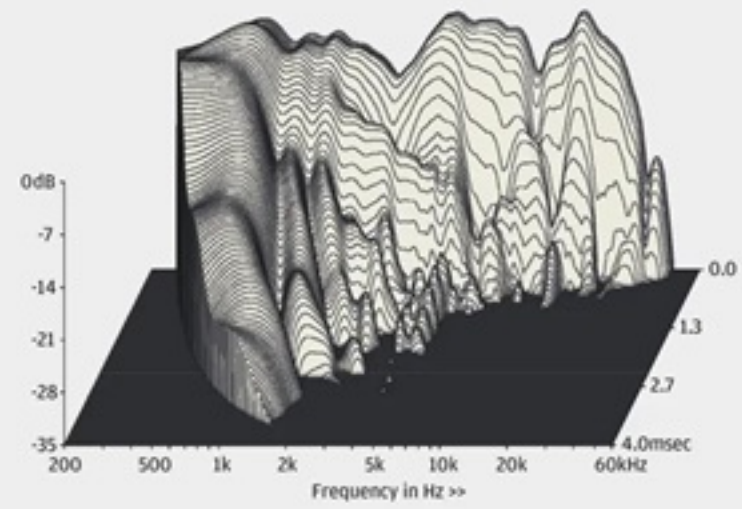
PS AUDIO ASPEN FR20

Is the FR20 a diminutive FR30 [*HFN* Jun '22]? In terms of the crossover points, ABR performance, distortion and impedance trend [see p45] it is, while the physical separation of woofers and mid/treble drivers in the FR20 has more to do with PS Audio utilising the floor boundary reinforcement to boost bass. However, the FR30's flat response trend is traded in the FR20 for one that shows a broad ~7dB depression centred on the 2.5kHz mid/treble crossover, followed by a boosted presence and steep dip at 11.4kHz [see Graph 1]. This stepped response – largely unaffected by vertical listening axis – results in large ±5.1dB and ±4.3dB errors, respectively, and a slightly diminished 86.5dB sensitivity (or 86.7dB averaged between 500Hz-8kHz). These features, and the 1.5dB pair matching, are largely unaffected by the snap-on magnetic grilles [blue trace, Graph 1]. Otherwise, as with the FR30, distortion from the 250mm planar magnetic midrange is very low at ~0.06% (re. 90dB SPL) and neither mid nor treble driver shows any significant breakup modes on the CSD waterfall [see Graph 2, below].

Nearfield analysis reveals the woofers have a 44Hz-460Hz bandwidth (–6dB), PS Audio again specifying a 400Hz low-pass crossover, while the 255mm ABRs peak at 25Hz [green shaded area, Graph 1], albeit with mild resonances at 72Hz, 107Hz and from 125-525Hz. There are further resonances associated with the carbon-fibre/Rohacell sandwich cone bass drivers [see CSD waterfall, Graph 2 and response, Graph 1] but, in combination, the pairs of woofers and ABRs deliver a creditable diffraction-corrected bass extension of 32Hz (–6dB re. 200Hz). PM



ABOVE: Response inc. nearfield summed driver/ABR [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Left, black; right, red; w. grille, blue



ABOVE: Some mild modes associated with the ABRs and carbon/foam woofers but PM tweeter is 'clean'

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V – 1kHz/Mean/IEC)	86.5dB / 86.7dB / 85.1dB
Impedance modulus: minimum & maximum (20Hz–20kHz)	4.17ohm @ 25.5Hz 8.37ohm @ 10.2kHz
Impedance phase: minimum & maximum (20Hz–20kHz)	–37.3° @ 21.5Hz +17.1° @ 4.9kHz
Pair matching/Resp. error (200Hz–20kHz)	1.5dB/ ±5.1dB/±4.3dB
LF/HF extension (–6dB ref 200Hz/10kHz)	32Hz / 32.8kHz/29.5kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.15% / 0.06% / 0.45%
Dimensions (HWD) / **Weight** (each)	1283x406x476mm / 60kg

Network-attached DAC with optional headphone amp
Made by: Data Conversion Systems Ltd, Cambs
Supplied by: dCS Ltd
Telephone: 01954 233950
Web: www.dcsltd.co.uk
Price: £19,000 (£21,500 with headphone amp)

dCS Bartók APEX

Debuted in the flagship Vivaldi, and now trickled down to the Bartók, dCS's APEX upgrade brings enhancements to the PSU, Ring DAC clocking and analogue output

Review: **Andrew Everard** Lab: **Paul Miller**

Maybe it's a sign of the times, or the state of the specialist high-end audio market, but this latest version of dCS's Bartók streaming DAC, often referred to as the company's 'entry-level' model, is now almost twice the price of the original [*HFN* May '19]. Then, the Bartók was £9999, or £11,999 when fitted with the optional headphone amplifier; now the Bartók APEX, taking on board the company's latest package of enhancements, first seen in the Vivaldi APEX [*HFN* Jun '22], is £19,000, rising to £21,500 if you choose to take the headphone option.

Given this, and the performance on offer from the APEX upgrade package as already experienced in the Vivaldi APEX, expectations are necessarily high for what the new Bartók might bring to the digital audio party. Nor is this the first time this model has been upgraded in its relatively short life. Last year a major software update – Bartók 2.0 – included an upgrade to the mapping algorithm controlling the dCS Ring DAC, improvements to the DSD upsampling, and new digital filter options [see PM's boxout, p49].

THE INSIDE STORY

Now the Bartók gets the full APEX package, which isn't a new digital-to-analogue conversion technology – no matter what you may have read elsewhere – but rather a rethink of the power supplies, the clocking of the Ring DAC and improvements to the analogue output stage.

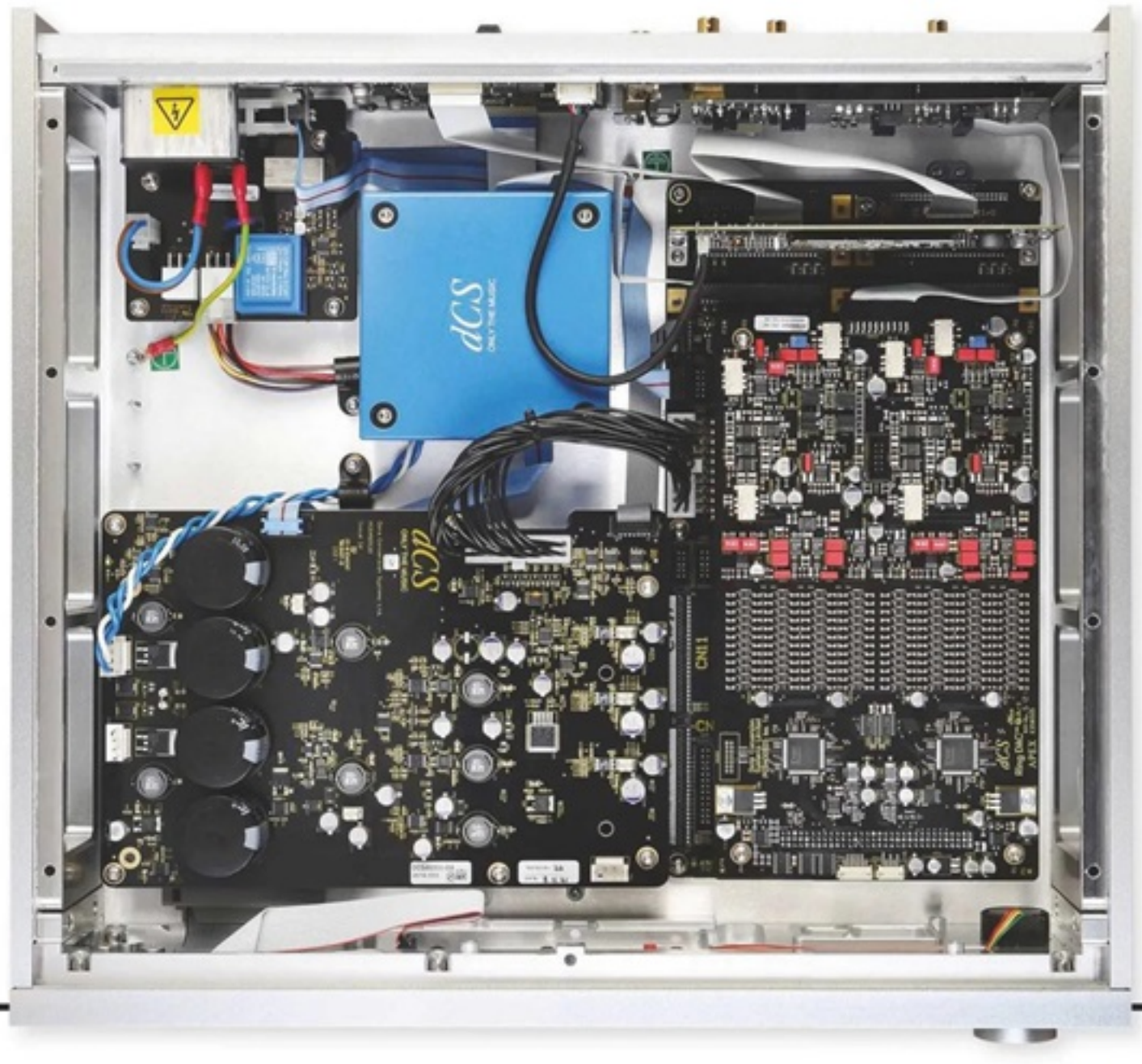
To go into slightly more detail, though the basis of the conversion remains the same, the only element of the DAC hardware that's unchanged is the resistor array at its core. The main DAC PCB has been redesigned and re-laid, as has the reference supply that feeds it, and there are enhancements to the filter, summing and output stages of the DAC. The symmetry of the summing stage has been improved, individual transistors on the DAC board have been replaced with a compound pair, and the balanced analogue output stage is, well, new.

So, it's apparent that, while the Bartók looks the same as always, these are far from running updates. And the good news for existing Bartók owners is that an upgrade package can bring their players up to date, albeit at a cost of £7500. That headphone amp option, by the way, is only available at point of purchase as it requires a different faceplate configuration. And while the original Bartók we reviewed almost four years ago was supplied with the headphone stage installed, the APEX version we have here arrived 'naked'!

Otherwise, the Bartók APEX is replete with connectivity [see p51], including AES/EBU XLRs, which can be used separately or paired to accept PCM data at up to 384kHz, dCS-encrypted DSD, or DSD in DoP up to DSD128. Then there are S/PDIF inputs on RCA, BNC and optical plus a choice of two USB inputs – one a galvanically isolated USB-B for computer connection, the other a USB-A port to accept music from storage devices of up to 32GB. There are also word clock inputs for the Bartók to be slaved to an external clock source.

COMPLETE PACKAGE

For many users – and count me in on this one – the most attractive feature of the Bartók will be its ability to operate as a complete network-connected digital player via its galvanically isolated RJ45 Ethernet port. Here music may be streamed from a music store on the home network, at up to 384kHz PCM and DSD128, or from online sources including Qobuz, Spotify and Tidal, with full MQA decoding for the last of



RIGHT: Screened transformer [blue box] and updated PSU [lower left] feeds new generation APEX Ring DAC, the latter including two Xilinx processors and 2x48 element matrix [lower right], and balanced audio output [top right]

these. Internet radio is also available, and you can even play music from your phone via Apple AirPlay, though this latter facility is well into 'sledgehammer cracking a nut' territory. Finally, the unit is also Roon-ready.

Control for all this network capability is provided by the excellent dCS Mosaic Control app, for Android or iOS, available free from the usual online app stores. This works in conjunction with the Mosaic Processor software running on the hardware, and provides 'palm of your hand' set up and control of the Bartók. In use it proves preferable to the minimal buttons arrayed across the front of the unit, and the often-complex menus they access.

Both balanced and unbalanced analogue outputs are provided, with the ability to use the DAC into a preamplifier at a maximum fixed output of 2V or 6V by setting the volume to '0.0dB'. Alternatively, it can be run straight into a power amplifier using the very high-quality volume control and buffered output to bypass a separate preamp altogether.

CONSISTENCY KING

Firmly in the 'hours of harmless fun' category is the raft of other adjustments the Bartók APEX provides, including three settings for the 'mapper' controlling how data is served up to the Ring DAC, and an extensive array of filter options for both PCM and DSD [see PM's boxout, below]. Having played with them for a good while, I found myself reverting to the default settings with either Filter 1 or 2.

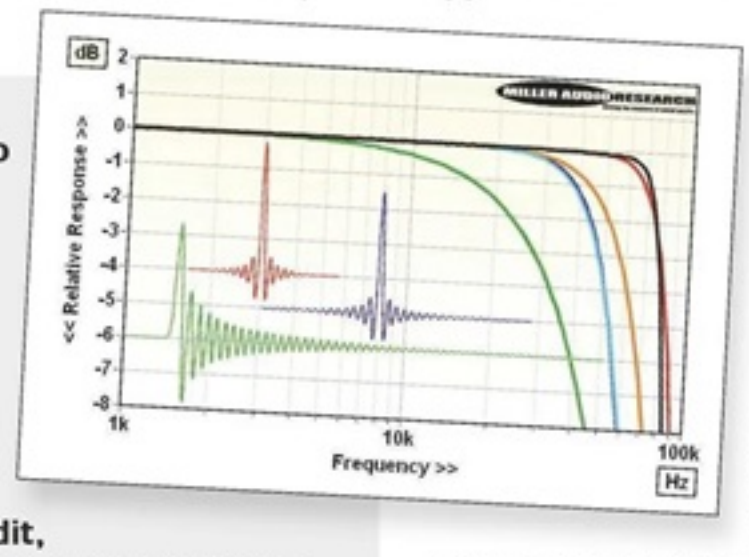
Used both as a DAC/preamp and as a straight DAC into a conventional amplification system, and over a variety of its digital inputs as well as running it network connected and as a Roon endpoint, it's impressive just how consistent the Bartók APEX sounds. That said, a bugbear for me is the limitation of its capability with DSD files. Yes, the Bartók APEX now handles DSD128 with ease, but the world has moved on somewhat, and many of the files I am downloading these days are in DSD256 – not because I'm playing the numbers game, but because that's how they were created. Yes, it's possible to play them by using Roon to take them down to DSD64 or DSD128 – the software will recognise that's the upper limit of the DAC's capabilities – but many DACs will now handle these files in their native form.

Rant over, and that limitation aside, the Bartók APEX is a remarkably accomplished device. Its streaming capabilities work simply and cleanly, with no gremlins encountered whether with the Mosaic Control app or third-party software running on a tablet or phone. And the sound is both weighty and substantial, with excellent bass definition, while at the same time fluid and superbly detailed.

Play an album like Brad Mehldau's *Your Mother Should Know* set of Beatles covers – and, curiously, one Bowie composition [Nonesuch 075597907407] – and the sound is all about realistic piano scale and the illusion of the instrument being played in the room before the listener. It boogied through 'I Saw Her Standing There', was limpid and soulful on 'Here, There And Everywhere', and simply magical on the album closer 'Life On Mars?'. Indeed whatever you play through the new Bartók, and however you choose to play it, you're ⟳

ABOVE: Rotary and array of buttons will navigate the various settings but the dCS app will be more convenient for most users

RINGING THE CHANGES



When it comes to digital filters, hi-fi brands typically fall into one of two categories – those that 'voice' their product(s) with one type of filter (a variant of linear or minimum phase, apodising, hybrid, *etc*, that's either home-grown or baked into an off-the-shelf DAC) and those that open the field with a smorgasbord of coefficients. Depending on your viewpoint, multiple filters are either *manna* from heaven for hi-fi tweakers, ambivalence on the part of the brand or a crafty attempt to drive me around the twist by exponentially increasing my workload in the lab... To its credit, dCS is, I believe, unique in curating digital filters whose coefficients (and hence the transition band, stopband, response and ringing characteristics) are adapted to each sample rate in turn. So, while Filters 1-4 and 6 are all linear phase types their performance with 44.1/48kHz media changes with 96kHz or 192kHz files.

The permutations are considerable, if you have the time, patience and auditory acuity to explore them all! For example, Filter 1 [black trace, inset Graph], Filter 2 [red] and Filters 3 [cyan] and 4 [orange] retain a ruler-flat response (–0.02dB/20kHz) with 44.1/48kHz media but trade progressively poorer stopband rejection (108dB for Filter 1 to just 16.6dB for Filter 4) for reduced pre/post-ringing. With 192kHz files these same four filters have very different HF responses – a steep cut to –13dB/90kHz, Filter 1; a gentler roll-off to –7dB/90kHz, Filter 2; an early post-20kHz roll-off to –6dB/56kHz, Filter 3; and a gentler post-30kHz roll-off to –18dB/90kHz, Filter 4. Filter 5 [green trace] is a minimum phase type with low sample rates but a NOS/Gaussian type above 176.4kHz [hence the early –6dB/39kHz rollout with 192kHz media on the inset Graph]. Filter 6 [purple] is another linear phase filter, but with a very long tap length, trading extended ringing for exceptional stopband rejection. PM

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ABOVE: Digital inputs span S/PDIF (two coax, one opt), two AES/EBU (on XLRs), one USB-A for external HDDs, one USB-B for computer connection and a network port (on RJ45) – joined by clock I/Os (on BNCs) and variable analogue outs (RCA and XLR)

dragged closer to the performance and immersed in the music.

With Father John Misty's live *Off-Key In Hamburg* [self-released, Bandcamp download], dCS's DAC slammed through 'Hollywood Forever Cemetery Sings' with fine drive and presence – as was the case with the whole album's dense mix, including both a full band and the Neue Philharmonie Frankfurt strings – plus excellent clarity in the delivery of the singer's voice.

ROCKIN' AND ROLLIN'

The same goes for Yo La Tengo's almost improvisational recent album *This Stupid World* [Matador OLE 1929CD], recorded as live by the American indie rockers and produced for maximum immediacy; here the clean sound of the dCS Bartók DAC drove the groove of the opening track, 'Sinatra Drive Breakdown', underpinned by James McNew's rumbling bass and Georgia Hubley's tight drumming.

Even with the echo-overlaid Stones track 'It's All Over Now', from *12X5* [ABKCO/London Records 844 461-2], the Bartók APEX laid bare the simple nature of the recording, revealing the performance of each of the five with an appealing rawness that goes all the way through to the all-too-short cover of 'Susie Q' at the end of the set.

The way this reborn DAC digs into the depths of a performance and a mix serves well Jacob Shea's atmospheric, dramatic 'The Arctic Suite', the centrepiece of violinist Eldbjørg Hemsing and the Arctic Philharmonic's *Arctic* [Sony Classical G010004635026E; 96kHz/24-bit download]. The shimmering simplicity of the solo instrument was wonderfully delivered, as was the weight and power of the full ensemble when required. This persuasive balance carries through to the intimacy of Brahms' 'Variations And Fugue On A Theme Of Handel', from Seong-Jin Cho's *The Handel Project* recital [Deutsche Grammophon 486 3018], where the focused view of the pianist's Steinway had both delicacy and speed, as well as excellent solidity in the lower octaves.

FERTILE GROUND

If I submit the opinion that the sound of this DAC is precise, I don't mean to suggest that it's in any way mechanical or sterile... Far from it, as illustrated by Jessie Buckley's soulful reading of 'Maybe This Time' from the 2021 London cast album of Kander & Ebb's *Cabaret* [Decca 4873046]. It's a long way from the all-guns-blazing Liza Minelli movie version, but all the better for that, while Eddie Redmayne's MC is wonderfully lascivious and sleazy, and equally well served by a recording the Bartók APEX revealed to be perfectly set in its small-club location.

> 'It's simply magical on the album closer "Life On Mars?"'

Add in that the sound was just as convincing with some highly atmospheric radio dramas – yes, in glorious 320kbps AAC! – and it's clear this latest arrival from dCS is not only a remarkable DAC, but also now firmly in that rarefied group of top-notch network players.

HI-FI NEWS VERDICT

Yes, it's quite a leap in price from the original Bartók to this new APEX version, but the gains in performance are more than commensurate with the uptick. This may be the 'entry-level' dCS offering, but there's no hint of that in a sound as revealing as it is involving, with excellent scale and resolution. Factor in the flexibility, its solidity of build and the clarity of its control app, and this is a very superior unit.

Sound Quality: 88%

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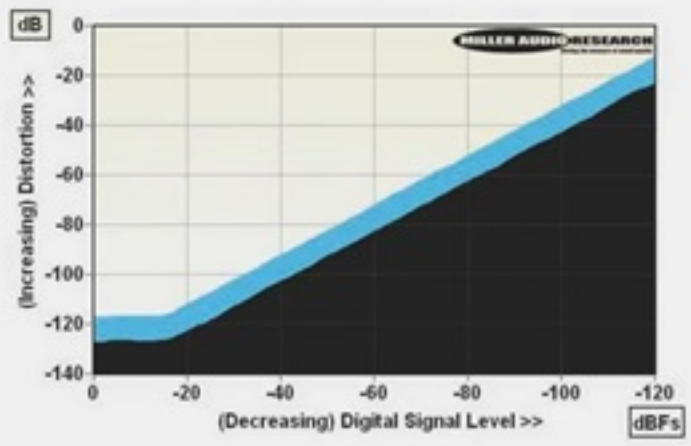
LAB REPORT

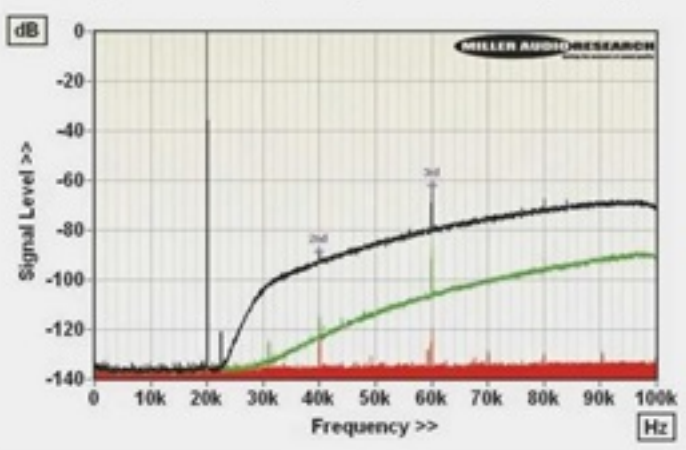
DCS BARTÓK APEX

Supplied here minus its headphone amplifier [*HFN* May '19] but enjoying the fruits of dCS's APEX upgrade to the Ring DAC array we saw launched in the flagship Vivaldi [*HFN* Jun '22], the Bartók now has an enhanced purpose as the brand's 'entry level' full-width digital source. While the various upsampling/format conversion and digital filter options [see boxout, p49] remain unchanged, the performance advantages offered by this APEX version of the Bartók are easily 'measurable'. While the peak/0dBFs output remains at 5.89V (balanced), the output impedance is fractionally lower (from 0.7ohm to 0.5ohm) and the A-wtd S/N ratio wider (from 116.6dB to 117.5dB). Similarly, while distortion at peak output remains stupendously low at just 0.00005-0.00025% (20Hz-20kHz) the APEX upgrade sees this reduced still further over the top 30dB of the Bartók's dynamic range [see Graph 1, below] from 0.0001-0.0004% (Bartók) to 0.00003-0.0001% (Bartók APEX) at –10dBFs (20Hz-20kHz) and from 0.0002-0.0006% to 0.0001-0.0002% (–30dBFs, 20Hz-20kHz), respectively. Jitter, too, falls from 10psec to ~7psec in this APEX variant. Granted, these are very small numbers, but they are still clearly illustrative of positive, incremental change at the cutting edge of the state-of-the-art.

The impact of dCS's LPCM-to-DXD and DSD upsampling is shown in Graph 2, where the increase in ultrasonic requantisation noise, and correlated 2nd/3rd harmonic distortions (with a 20kHz/0dBFs signal), to DSD128 [green] and DSD64 [black] compared to DXD [red] is very clear. Five DSD filters are offered, Filter 1 offering a steep –6dB/83kHz rollout after upsampling from 192kHz LPCM, with Filters 2-5 reaching 76kHz, 70kHz, 33kHz and 39kHz (all –6dB re. 1kHz), respectively. PM



ABOVE: Distortion vs. 24-bit digital signal level over a 120dB range at 1kHz (black) and 20kHz (blue)



ABOVE: 20kHz/0dBFs at 192kHz/24-bit upsampled to DSD (black), DSDx2 (green) and DXD (red)

HI-FI NEWS SPECIFICATIONS

Maximum output level / Impedance	5.89Vrms / 0.5ohm
A-wtd S/N ratio (USB / Network)	117.5dB / 117.5dB
Distortion (1kHz, 0dBFs/–30dBFs)	0.00005% / 0.00009%
Distortion & Noise (20kHz, 0dBFs/–30dBFs)	0.00025% / 0.00025%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0 to –0.0dB/–0.6dB/–7.1dB
Digital jitter (48kHz / 96kHz)	7psec / 8psec
Resolution (re. –100dBFs / –110dBFs)	±0.2dB / ±0.4dB
Power consumption	22W (21W standby)
Dimensions (WHD) / **Weight**	444x115x430mm / 16.7kg

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Manley Jumbo Shrimp/Mahi

'Tubes Rule' is the Manley Labs mantra as we catch up with an aquatically-inspired pre/monoblock combo that have been at the core of its range for the best part of 20 years

Review: **Ken Kessler** Lab: **Paul Miller**

Timely or what? When editor PM pointed out that the Manley Jumbo Shrimp Line Preamplifier (£5849) and Mahi Monoblock Amplifier (a stereo pair at £7599 making up Mahi-Mahi – geddit?) had been in the catalogue for ages, I learned from company president EveAnna Manley that it was exactly 20 years to the day of their debut that I was auditioning the latter.

In addition to a longevity that recalls the days when companies like Quad and Klipsch kept models in production for decades, Manley Laboratories Inc has over 40 models in constant production. 'We do not have the resources to just invent all-new products every six months', says EveAnna. 'Sometimes we will make quiet changes or pragmatic updates from within, but unless we make a giant design adjustment, we sometimes keep the same model in production for decades.'

LIVE LONG AND PROSPER

The Jumbo Shrimp and Mahi aren't alone in this. Manley's other products, which become the brand's 'evergreen' classic models, include the Pultec EQs (1989), Reference Gold Microphones (1990), Variable Mu Stereo Limiter Compressor (1994), the Voxbox (1997), and the Steelhead phono stage (2001). The first pair of Mahis shipped on Feb 12th, 2003, while the original four-valve Shrimp Line Preamplifier was introduced in Jan '02.

Around late October 2008, Manley added the additional 'White Cathode Follower' buffer requiring two more tubes [see inside pic, right] to drive the 100kohm motorised volume control, plus the RF 'Remora' remote control. At this time, too, an extra transformer was installed to run all six valves' heaters – two each of 12AT7EH input triodes, 5687 output tubes, and 5670 driver triodes, justifying the revised model name of *Jumbo* Shrimp. Since that upgrade, however, the preamp has remained unchanged. It offers five line inputs – Manley's Steelhead and Chinook [*HFN* Dec '21] phono stages can be added for vinyl users – accessible via RCAs [see p55]. Alongside these are sockets for Record Out and the main output(s).

As you can already tell, installation is intuitive for anyone who has ever set up a hi-fi system, as is operation. Across the front are fat domed rotary controls to select one of the five inputs; a massive, motorised rotary for volume; a push-button for Mute; and two further controls for power on/off and balanced. When fired up, the Manley Jumbo Shrimp logo illuminates.

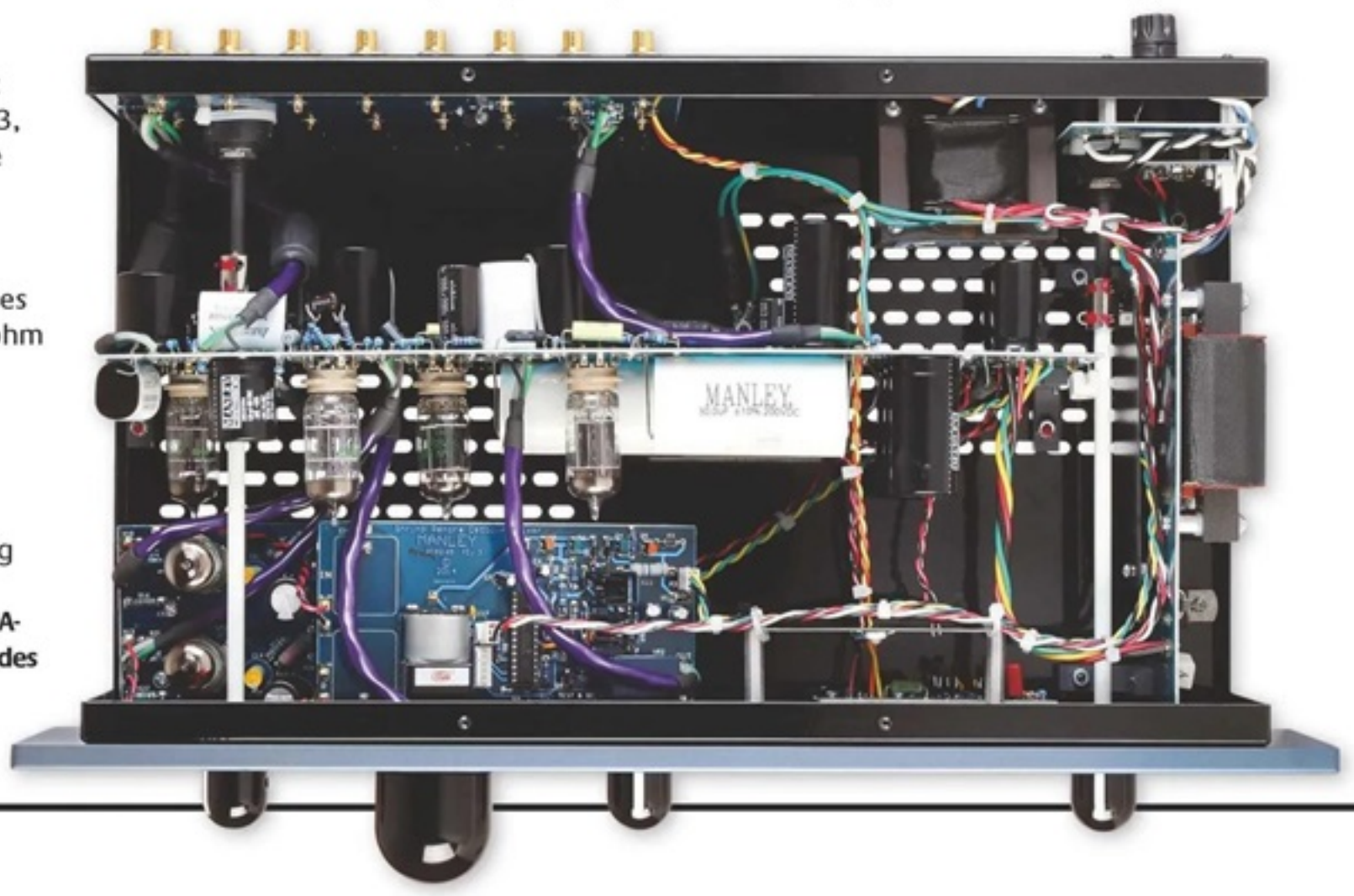
> 'The sense of atmosphere was all-pervading'

As for the Mahi monoblock, its arrival in early 2003 served as the replacement for founder David Manley's previous 50W and 35W mono amps. Its unusual six-sided chassis was developed from the original 1997 Stingray Integrated Amplifier, and the Mahi circuit is also taken from the Stingray, where the input stage and output transformer differed from (David) Manley's older amplifier designs. These elements were developed by EveAnna and her team specifically for the Stingray after David moved to France, and there have been no critical engineering changes for the Mahi during its lifetime.

VACUUM PACKED

It's not just the unusual, compact footprint that characterises the rather lightweight Mahi, which is the opposite of the Jumbo Shrimp when it comes to minimalism. Had it been designed with the same approach, all it would carry is a power on/off switch. That, by the way, is a rocker found on the back, next to the AC fuse holder and IEC mains socket [see p57]. But the top panel is loaded, beyond the valve complement of four EL84s, one 12AT7EH and one 12BH7. These are manually biased, by the way, with the aid of a supplied multimeter and the most comprehensive owner's manual I have ever seen.

Behind the transformers are the primary fuse, an RCA socket for input and a pair of multi-way speaker cable binding posts.



RIGHT: Jumbo Shrimp's Philips-branded, USA-made tubes include two 12AT7EH input triodes and two 5687 output tubes [edge-on PCB, centre left] plus two 5670 driver triodes [bottom left]. Volume is motorised [bottom]

The fun, via two toggle switches, is at the front where the Mahi amplifier allows you to voice it for mood, taste, or primarily by choice of speakers. Most useful, and admittedly found in a number of tube amps, is a selector for ultralinear (UL) or triode operation modes. This has been written about copiously, but in essence, the former offers greater power at 40W, the latter warmer/sweeter sound but only 20W. It's not as clear-cut as that might seem, but most listeners will form a preference.

Then there's the variable negative feedback, which is offered in three levels of Max (10dB), Standard (6dB) and Min (3dB). Again, as with UL vs. triode, one cannot generalise nor assume that one setting will be satisfactory for all listening sessions, though UL vs. triode is easier in that it is about audible gains in power. With feedback, levels change slightly too, but so does character [see PM's Lab Report, p57].

FLIPPING SWITCHES

To give you some idea of how its selectable feedback and UL vs. triode modes work in practice – and I'm not suggesting I'd change either or both for every CD, LP or tape – I preferred triode and minimum feedback with the sensitive/high impedance DeVore 0/93 loudspeakers [*HFN* Mar '23], UL and standard feedback with the Wilson Sasha DAWs [*HFN* Mar '19], and Triode and maximum feedback with LS3/5As. And even that wasn't cut-and-dried: open-reel tape and LP begged different settings, while CD sounded best in triode/minimum feedback modes regardless of the speakers used.

To discover any sonic variations between the Jumbo Shrimp and Mahi, I also drove an Audio Research REF75SE with the Jumbo Shrimp, and the Mahi-Mahi pair with an Audio Research REF6SE line-stage preamp [*HFN* Jan '21]. While clearly voiced by, and coming from, the same team, the Jumbo Shrimp is quieter and slightly leaner in nature than the Mahi, but both are unmistakably all-valve designs. Alone or together, they lean toward the warm, both with massive, open soundstage recreation.

This was rendered immediately apparent with Herbie Mann's *Live At The Whiskey A Go Go* [Atlantic 1536 3-3/4ips tape]. Consisting of two numbers, each filling a side of the tape, the sense of atmosphere was so all-pervading that it was almost – and I mean this in a good way – a distraction from the performance. How so? Because the Manley pairing was succeeding in achieving that most important of accomplishments in home music reproduction: transporting the listener to the original musical event.

With the emphasis on this session being funk and soul, the bass was almost as prominent as Mann's flute, but it was the latter which proved the measure of the system for me, as I hear real flute every day, courtesy of Mrs K. Every detail, each breathy intake or output – I was so taken with the way this Manley trio managed this that I dug out other flute-led recordings including Love's 'She Comes In Colors' from *Heroes And Villains – The Sound Of Los Angeles 1965-68* [Grapefruit CRSEGBOX109 CD], and *Ian Anderson Plays The Orchestral Jethro Tull* [Parlophone 0190296 688270 LP].

BATTLE OF THE BANDS

Here was the challenge – a three-way test of live venue/jazz flute vs. studio/delicate folk-rock flute vs. power flute with a full orchestra. Same instrument, different sound, as when my guitarist friends can tell ⟳

RIGHT: The partnering Mahi monoblocks feature two pairs of EL84 pentodes with a 12AT7EH input tube and 12BH7 driver/phase-splitter. Ultralinear and triode modes are selected via a toggle alongside three levels of overall feedback (Min, Std and Max)

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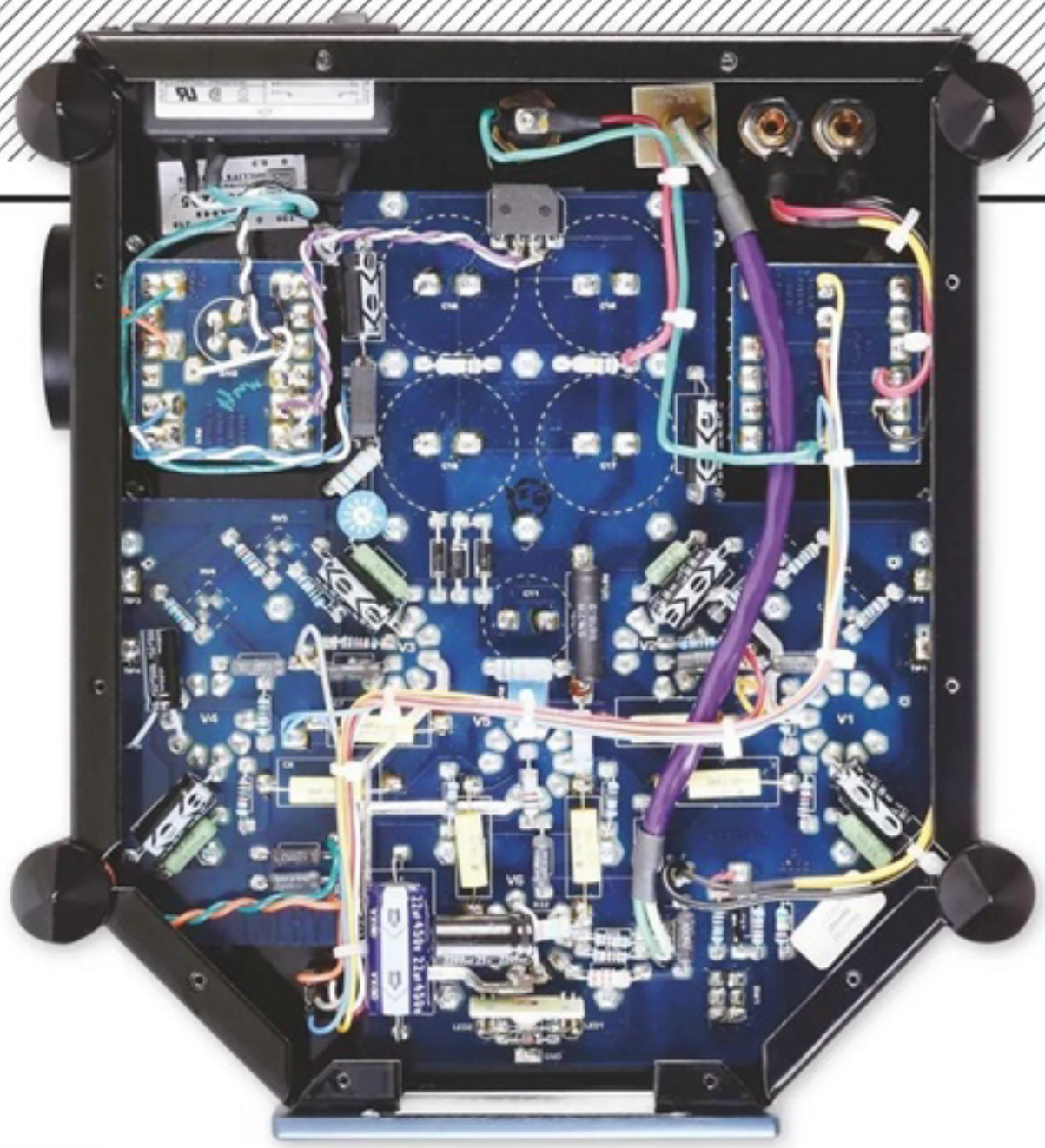
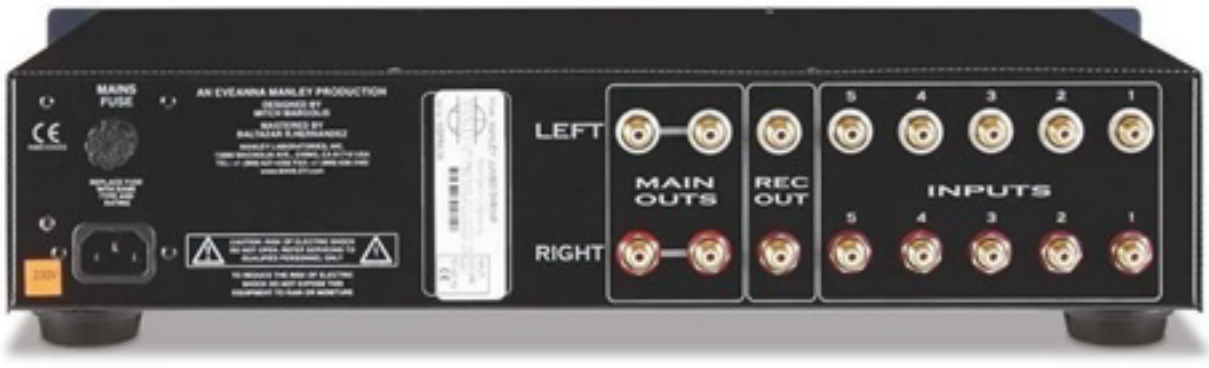


ABOVE: Under the Mahi, revealing a mix of PCB tracks and point-to-point wiring. Two transformers are used, one [top left] for the PSU [top centre] and the other a Manley-custom design optimised for the amplifier's ~5ohm speaker output [top right]

a Fender Strat from a Fender Jaguar over a decent system. In each case, the characteristics were preserved and carefully differentiated in the form of sweetness (Love), mellowness (Herbie Mann) and ferocity (Ian Anderson).

Moving to one of my all-time fave tracks also enabled me to test the variable voicing afforded by feedback and operational mode. Comparing B.B. King's 'Don't Get Around Much Anymore' with the Duke Ellington Orchestra conducted by Maxwell Davis on CD and open-reel tape meant putting into practice the sonic applications, as opposed to the level gains which are functional as much as they are subjective. The CD version was on the *Hi-Fi News*/Ace Records 'All-Time Greats' disc [ACE1] while the tape was *Compositions Of Duke Ellington And Others* [Crown ST110].

BELOW: Simplicity itself – the Jumbo Shrimp offers five single-ended line ins, a fixed tape output and a parallel pair of preamp outputs (all on gold-plated RCAs)



MAXIMUM GAIN

Ordinarily, I don't spend much time complicating matters when reviewing a hi-fi component by adding to the testing such format-vs-format face-offs. That's obviously necessary when reviewing, say, a One-Step LP and an original standard pressing, and it also seemed crucial to understanding the potential of the Mahi amps – especially as the Jumbo Shrimp proved itself to be ghostly quiet and, as PM points out [see Lab Report, right], a form of universality because it delivers great wallop. This will catch you out if you have a source of particularly high output, as was I taken aback when I switched from tape to vinyl with the phono stage on maximum gain...

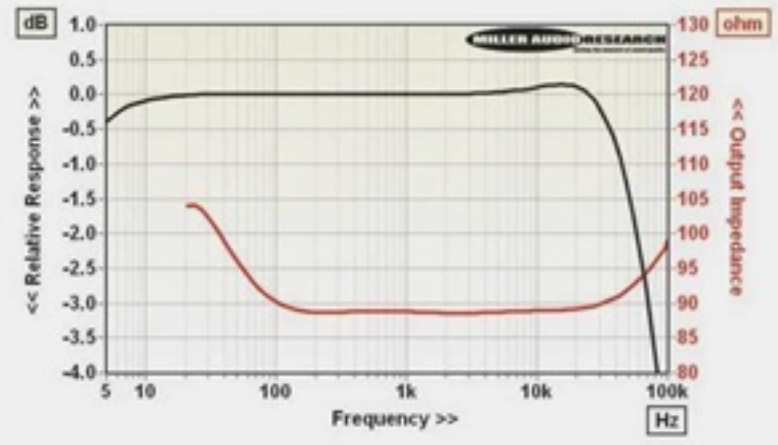
But back to the analytical properties of the Mahi(s) and the ⟳

LAB REPORT

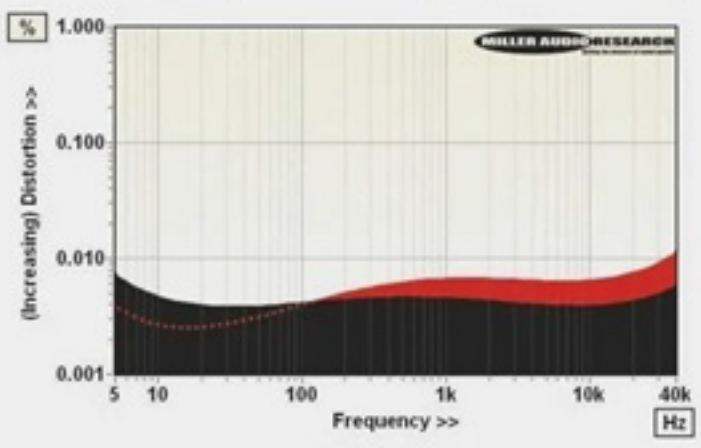
MANLEY JUMBO SHRIMP

Anyone who tells you that tube amplifiers are inherently noisy clearly has not sampled Manley's Jumbo Shrimp! Here a trio of 12AT7EH input triodes, 5670 drivers and 5687 output tubes are configured to yield an 'industry standard' gain of 11.9dB with a wide A-wtd S/N of 90.8dB and an unwtd residual noise of just –100.3dBV (9.7µV). Moreover, the Jumbo Shrimp incorporates sufficient headroom to allow a massive 26V output, which is more than enough to drive any hi-fi power amp into clipping (and beyond...). Incidentally, the partnering Mahi power amps require less than 0.5V to reach full output (standard feedback/ultralinear modes) so care must be taken not to feed the Jumbo Shrimp *too* high a line signal if full use of the volume control is to be realised. Fully analogue volume pots are rare these days but the channel balance is within 0.5dB over the top 60dB of its range – a good result – while crosstalk climbs slowly with frequency, from –92dB/20Hz, –72dB/1kHz to –47dB/20kHz.

The Jumbo Shrimp's response [black trace, Graph 1] is largely unaffected by the position of the (correctly buffered) volume control, reaching down low and up high with ±1dB limits of 3Hz-45kHz and showing just the mildest +0.14dB lift from 10-20kHz. The output impedance is low enough at ~89ohm, increasing to 104ohm at 25Hz [red trace, Graph 1], so the Jumbo Shrimp should prove 'interconnect friendly', aided by the Mahi's high 110kohm input loading. Distortion increases with output and frequency extremes, achieving a minimum of ~0.002% at 200-300mV output in the midrange before rising to 0.004%/1V, 0.01%/2V, 0.03%/5V and 0.065%/10V. Versus frequency, the tubes were better matched in the left channel here [see Graph 2] achieving a very 'flat' ~0.004% from 20Hz-20kHz. **PM**



ABOVE: Frequency response (black) and output impedance (red) at 0dBV output (max volume)



ABOVE: Distortion versus extended frequency at 0dBV (left channel, black; right channel, red)

HI-FI NEWS SPECIFICATIONS

Maximum output (<1% THD, 47kohm)	26.0Vrms
Maximum input level (<1% THD)	>7Vrms
Output impedance (20Hz–20kHz)	89-104ohm
Freq. response (20Hz–20kHz/100kHz)	–0.0dB to +0.1dB / –5.4dB
Input sensitivity (re. 0dBV)	255mV
A-wtd S/N ratio (re. 0dBV)	90.8dB
Distortion (20Hz-20kHz re. 0dBV)	0.0040–0.0045%
Power consumption	53W
Dimensions (WHD) / **Weight** (total)	483x89x279mm / 6.8kg

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ABOVE: The single-ended RCA input and 4mm WBT speaker cable posts rise up from the top rear of the Mahi's compact chassis. Although tube biasing is still a manual process with this amplifier, speaker 'matching' is designed to be as simple as possible

usefulness of both the feedback and mode selections. As seasoned readers will know, the nature of CD is typically tighter, cleaner if rather hygienic when A/B'd alongside LP or tape – so in this instance, I chose to compare them to see what one could do with the variables.

While UL and triode modes differ measurably, one providing double the power over the other, it was clear from the outset that I preferred CD playback with the Mahi amplifiers set to triode because of the sweetening effect, a 'humanising' of the sound. It was just that much warmer, more lifelike, with no real sacrifice in punch, *e.g.* the saxophone still leapt from the speakers, while King's voice still enjoyed the rich resonances which make him so instantly recognisable. Where the fine-tuning occurred, in which hands-on listeners will revel, was with feedback, in this case using the minimum setting.

I cannot explain why this was the result, but moving to the super-sweet, lush-sounding tape, I actually preferred the tighter, beefier UL mode with standard feedback. Perhaps the most striking lesson from this was not so much about the tube configuration, as we have had, as cited before, countless amplifiers over the years that let you choose between UL and triode, but how much of a difference adding or subtracting 3dB of negative feedback can make.

LEFT: The 'Remora' Model 22R Bluetooth remote transmitter offers long-distance control over the Jumbo Shrimp's volume

SONIC TONIC

Actually, there's another lesson to be learned. This pairing isn't just for hi-fi obsessives who can't resist fiddling with stuff, like Japanese enthusiasts with different cartridges for each record label. No, it's a tonic for the indecisive. In other words, thanks to all the settings, you needn't worry about having to choose.

HI-FI NEWS VERDICT

I've never used Manley gear that didn't impress me, and these veterans continue that tradition. Leaving aside the appeal of the Jumbo Shrimp's no-nonsense approach and Mahi's exceptional 'tuneability' and flexibility, the sound so cosseted the music, and so graced my resident DeVore speakers, that I didn't want to let go of them. Please refrain from hate-mail, but even at £13k+ I have to call these bargains.

Sound Quality: 88%

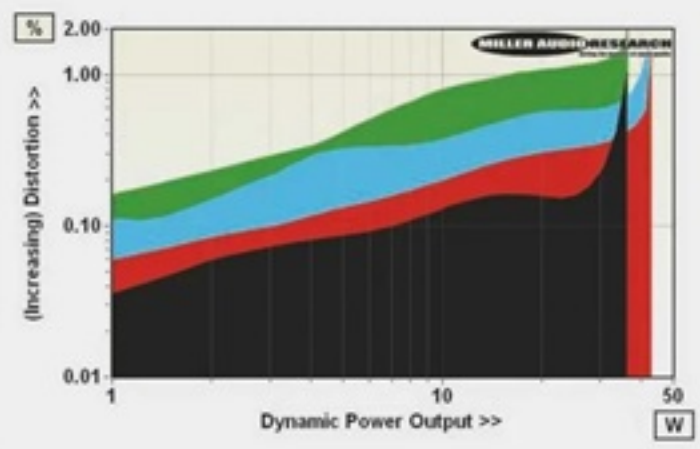
0 - - - - - - - - 100

LAB REPORT

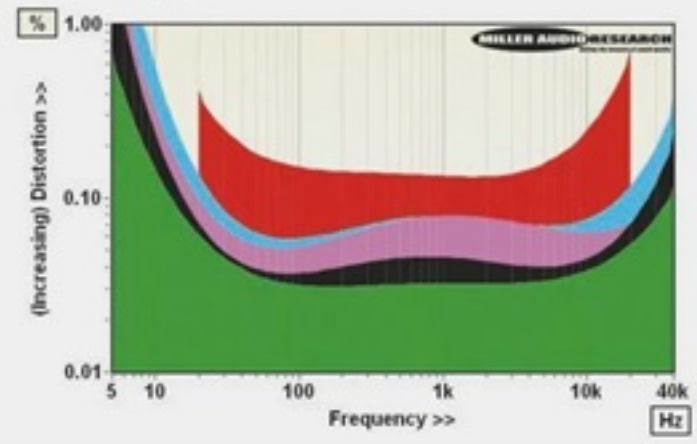
MANLEY MAHI

Despite its compact chassis, and the single secondary output windings/single speaker outputs, the Mahi packs a lot of 'user involvement' onto its polished black top plate. Both ultralinear (UL) and triode modes are offered, the latter connecting the plates and screen grids within each of the EL84 pentodes to achieve an alternate pattern of distortion (that some prefer), a higher output impedance/modified response shape and a reduction in maximum power output. In practice the Mahi achieves 35W/8ohm and 39W/4ohm in UL mode and 20W/24W, respectively, in triode mode, with sufficient headroom to accommodate 36W, 44W, 43W and 35W into 8, 4, 2 and 1ohm, respectively, in UL mode [see Graph 1, below]. Manley's specification of 40W at ~1.5% THD is not wide of the mark but while power output and frequency response are optimised for ~5ohm the Mahi's output impedance is lower and more load-agnostic at <0.75ohm (20Hz-20kHz) than Manley's 2.16ohm rating might suggest. Both UL and triode modes have a –0.55dB/20kHz response into 8ohm and –0.48dB/20kHz into 4ohm, with bass good to a low –3dB/3Hz.

Distortion, on the other hand, is influenced by both UL or triode modes and the 'Min' (3dB), 'Standard' (6dB) and 'Max' (10dB) feedback settings. In UL/standard modes, THD increases from 0.04%/1W to 0.14W/10W and 0.17%/30W, and pitches up through the low bass to 0.07%/20Hz and 0.2%/10Hz at 1W/8ohm [black trace, Graph 2]. 'Max' feedback squeezes THD down to 0.03-0.06%, 'Min' relaxes it to 0.07-0.13% while 'Standard'/ triode mode sits in-between at 0.06-0.1% [all 20Hz-20kHz re. 1W/8ohm; green, blue and pink traces, respectively, Graph 2]. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 5.9A



ABOVE: THD vs. freq. (re. 1W/8ohm, Min feedback blue; standard, black; max, green; Triode, pink; 10W, UL, red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	35W (20W) / 39W (24W)
Dynamic power (<1% THD, 8/4/2/1ohm)	36W / 44W / 43W / 35W
Output imp. (20Hz–20kHz/100kHz)	0.73-0.53ohm / 0.93ohm
Freq. resp. (20Hz–20kHz/100kHz)	+0.0dB to –0.55dB/–1.25dB
Input sensitivity (for 0dBW/40W)	75mV / 466mV
A-wtd S/N ratio (re. 0dBW/40W)	75.6dB / 91.6dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.14-0.72% (UL: Std. feedback)
Power consumption (Idle/Rated o/p)	90W / 98W
Dimensions (WHD) / **Weight** (total)	254x127x279mm / 8.2kg

Two-way coincident-driver standmount loudspeaker
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MoFi SourcePoint 10

Hi-fi's 'go-to' speaker innovator, Andrew Jones, is behind MoFi's first loudspeaker – a robust standmount featuring a dual-concentric driver with nothing less than a 10in cone

Review: **Mark Craven** Lab: **Paul Miller**

Launched in the 1970s as an audiophile-grade record label, Chicago's Mobile Fidelity has acquired a celebrated reputation among vinylistas, particularly for its One-Step pressings [*HFN* May '17]. Its move into the world of vinyl replay in 2016, under a new MoFi Electronics division, was arguably a long time coming. The range now extends to cartridges [*HFN* Jan '22], phono preamps [*HFN* Mar '20], and three turntables – the StudioDeck [*HFN* Jan '20], UltraDeck [*HFN* Jul '19] and the luxurious, Fender-branded PrecisionDeck. And the next obvious step? Loudspeakers.

Priced at £4500 a pair and available in either a satin walnut or black ash real wood veneer wrap, the SourcePoint 10 is the result of a two-year development project led by designer Andrew Jones, formerly of KEF, TAD, ELAC and others. MoFi has given its model the stated intent of 'breaking through a crowded speaker market'. Time will tell whether or not that mission has been accomplished, but there's no denying this speaker stands out by virtue of its atypical design.

WALKING TALL

Measuring over half a metre tall, 368mm wide and 406mm deep, and weighing in at 21kg a piece, the SourcePoint 10 can hardly be classed a bookshelf speaker, even if our pictures suggest it looks a lot like one. Nor is it part of the 'compact' floorstander market, where angled stands and baffles are used to target the listening position. It is simply a rather large standmount, with MoFi also selling robust, four-legged open stands (£550) to raise the speaker to an optimal height.

If such generous dimensions (and a 50-litre cabinet volume) can be considered unconventional, more so the SourcePoint 10's driver complement – because that bass/mid unit framing the tweeter in MoFi's two-way coaxial array is 250mm in diameter [see PM's boxout, p59]. Convert that to inches, and you get the origins of the loudspeaker's name.

This array is both unusual for a speaker in general and for Andrew Jones, who says 'my typical approach has been to use a three-way'. Yet in pursuit of a 'pure' concentric speaker with high sensitivity and deep bass extension, plus a simpler, cost-efficient crossover, Jones struck upon this two-way solution. The caveat lies in that large cone, its significant surface area traded against a reduced excursion – essential, says Jones, for the coincident tweeter to be optimally loaded and IM distortion reduced, *etc*. We've recently seen bass drivers from Purifi, on Kroma Audio's Atelier floorstanders [*HFN* Feb '23], that take a different approach, with a smaller 165mm cone and complex surround permitting a far greater pistonic motion. The SourcePoint 10's low-excursion driver instead needs only a very low-profile 'multiroll' surround.

> 'She was a spectral free-floating presence'

The woofer cone material is tried-and-tested paper pulp, its profile shaped to act as a waveguide for the tweeter. While stiffer cone materials with deferred breakup modes were deemed impractical and/or costly at the size, the 10in paper pulp cone demands a relatively low 1.6kHz crossover. Hence the larger-than-typical 1.25in (33mm) soft dome tweeter with wide roll surround and 28mm copper voice coil all pushing its useable bandwidth to lower frequencies.

PERFECT COUPLE

Jones has also devised a distortion-limiting 'Twin Drive' motor system, where neodymium magnets for both the woofer and tweeter are coupled together, 'each aiding the other in driving flux across both the woofer and tweeter gaps'. This

RIGHT: MoFi's cabinet employs 25mm MDF panels, two 25mm vertical braces and a 50mm faceted baffle that's shaped to minimise diffraction. The 250mm pulp-fibre woofer has a 32mm tweeter concentrically-mounted at the cone's apex

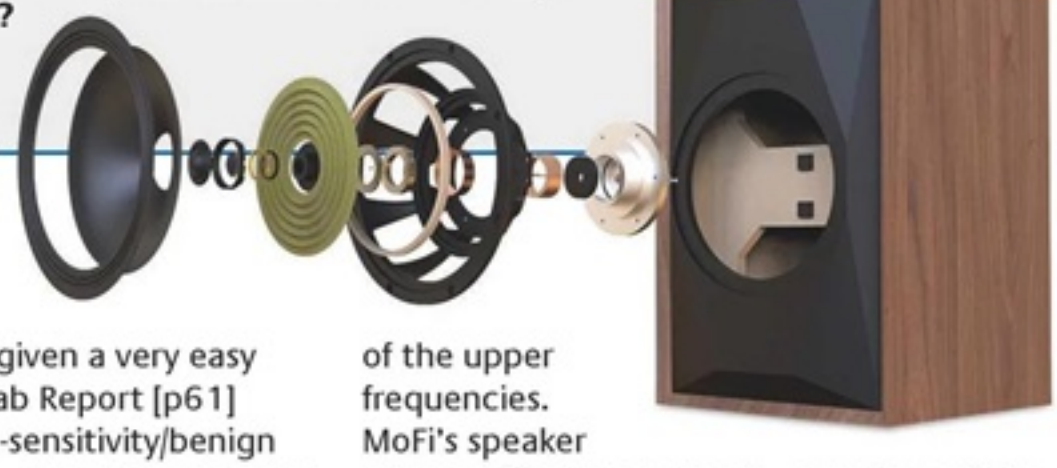
coaxial/coincident driver is housed in a robust cabinet braced with two vertical dividers and with top, bottom, side and rear panels (the latter with dual reflex ports) made from 25mm-thick MDF. The front baffle, meanwhile, is 50mm MDF, and multifaceted to reduce diffraction. This gives the loudspeaker a markedly more stylish appearance that sets it apart from the distinctly square and 'boxy' '70s-era high-sensitivity models.

EASY RIDER

Placement recommendations for the SourcePoint 10 aren't particularly prescriptive – 'there is no golden rule' says the accompanying manual – but the suggestion is for toed-in cabinets to be positioned between two to four feet from rear and side walls while forming an equilateral triangle with the listening seat. In other words, these sizeable cabinets should be given room to breathe, even while they won't necessarily need to be given plenty of power. My resident McIntosh MI502 [*HFN* Mar '23] and Primare A35.8 [*HFN* May '22] power amplifiers were given a very easy ride, confirming PM's Lab Report [p61] which finds MoFi's high-sensitivity/benign impedance claims ringing true.

HAPPY COINCIDENCE

Just like KEF with its Uni-Q mid/treble driver, Andrew Jones, for MoFi, has incorporated a dome tweeter where the dust cap of the bass/mid cone would otherwise be located. The idea of using a coaxial alignment to avoid the unpredictable vertical (off-axis) response experienced with conventionally spaced bass/mid/treble drivers is taken to its logical conclusion here – Jones' design uses a single, concentric driver array to cover the entire audioband. A 'point source' is achieved by aligning the acoustic centres of the two drivers, while the tweeter embodies sufficient size (33mm) and excursion to operate as low as 1.6kHz. Jones has specified the flare of the large 250mm bass cone to optimally load the tweeter, matching its directivity to that of the cone at crossover, while attempting to minimise reflections from the mouth (the cone surround) back towards the throat (the cone apex). Success? Turn to the Lab Report, p61. PM



BIG TEN

This statuesque loudspeaker put me in mind of other large-box, ported American standmounts with big bass drivers – Klipsch's Heresy IV [*HFN* Nov '20] and JBL's 4349 [*HFN* Mar '21] – so I was half-expecting it to sound similar. Yet both those feature horn-loaded compression drivers (two, in the case of the Klipsch three-way), yielding, to different degrees, a more candid, almost forceful, presentation of the upper frequencies. MoFi's speaker takes a different approach, sounding a little more reticent to really hammer out details. So it's not an 'in your face' speaker; it's always musical and evocative. Moreover, that 250mm driver is well-behaved, giving bass a tight, tuneful quality, although it can still terrify with the right material.

London Grammar's 'Hey Now' [*If You Wait*; Metal & Dust Recordings MADART1], a regular acid test of the low-end, found the SourcePoint 10 easily outgunning conventional standmount rivals with the size and weight it brought to the notes that underpin the second verse. The bass was voluminous and deep enough to convey, if not entirely, the lowest tones. A glance at MoFi's woofer showed it barely seeming to move, whereas I've witnessed this track cause smaller, more excursive cones to wobble frantically. Less demands were put on it by Black Sabbath's 'God Is Dead?' [*13*, Vertigo 3735426], and it gave an excellent rendition of Geezer Butler's bass playing, not only the slow, deep notes, but the sound of his instrument's strings being plucked with force.

There's no dedicated midrange driver here, yet the speaker shows a fine grasp of instrumental and vocal tones. Wagner's Das Rheingold prelude, performed by the Berlin Philharmoniker under Herbert von Karajan [DG 457 781-2], features the full orchestra pit, bar the percussion. The SourcePoint 10s held the long bass notes from start to finish, and confidently laid on the strings and the woodwind so that by the time it reached its crescendo, there was a wall of sound with ample texture and detail.

LEFT: The plastic-framed grille attaches magnetically to the satin walnut (or black ash) veneered cabinet. Optional frame stands are available

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AURALIC PRESS AWARDS

LEFT: A pair of substantial 4mm cable binding posts connect to the relatively simple 1.6kHz crossover. The cabinet tapers slightly to the rear where two large ports provide the woofer's reflex loading

On The Flaming Lips' 'Waiting For Superman' [*The Soft Bulletin*; Warner Records 44.1kHz/24-bit], sustained honky-tonk piano chords had a pleasing resonance and cut through the drums and synths. Yet this piece wasn't without a few bumps in the road. The speaker's forthright lows found a mode in my room that coloured the impact, forcing some re-evaluation of their positioning. More noteworthy, and perhaps indicative of the task set by MoFi of the speaker's 33mm tweeter, there was some lack of that elusive high-end 'sparkle' to the hi-hat.

MIND'S EYE

Generally, however, the SourcePoint 10s sound well-balanced from bottom to top, avoiding a glassy or overly bright treble. And what I'll ascribe in part to those concentric drivers is a wonderful synergy across the range, and a sense of music being effortlessly crafted. Hannah Reid's vocals on London Grammar's debut album are often described as haunting, but I've rarely heard her sound so spectral; a free-floating central presence, and one that remained captivating even when listening off-axis. Like the eyes on a Renaissance painting, she seemed to follow me around the room.

Another test of the soundstage was Robin Trower's 'Bridge Of Sighs' [*Living Out Of Time – Live*; Ruf Records 96kHz/24-bit], which evoked the band on a stage. It was easy to visualise Trower's Hendrix-esque guitar, all grit and snarl, blasting out adjacent to the drum kit. And on Bob Marley & The Wailers' brilliantly recorded 'Turn Your Lights Down Low' [*Exodus*; Island Records/UME, 96kHz/24-bit], there was a more vivid, precise placement of the varied instruments to go alongside the smooth, comforting tone wrought by the MoFi SourcePoint 10s.

With modern dance tracks that care little about stereo imaging, these speakers get on with sounding full-range and subjectively uniform. Trance anthem 'Carte Blache', by Veracoche [*Pure Trance Classics*; New State Music NEWCD9068], thundered along with a punchy kick drum and synth notes that ebbed and flowed through the midband, while DJ Brockie and Ed Solo's drum 'n' bass piece 'Represent' [Undiluted 44.1kHz/16-bit download] was less musical, more visceral. Both proved MoFi's woofer isn't slow, particularly with the deliberately jerky bass on the Brockie track, and with the McIntosh amp as back up the SourcePoint 10s smashed out these nightclub staples. Unsurprisingly, given their proven spec. and sheer size, they can be cajoled into sounding far larger than a staple standmount.

HI-FI NEWS VERDICT

Many enthusiasts will have room to accommodate MoFi's debut loudspeaker and be rewarded by a cleverly designed two-way standmount that nails the high output, full-range, easy-to-drive brief. The SourcePoint 10 conjures floorstander-esque bass, allied to a rich, involving tone and imaging *nous* that makes your music sing. Sure, it's unconventional, but some out-of-the-box thinking by Andrew Jones has paid dividends.

Sound Quality: 87%

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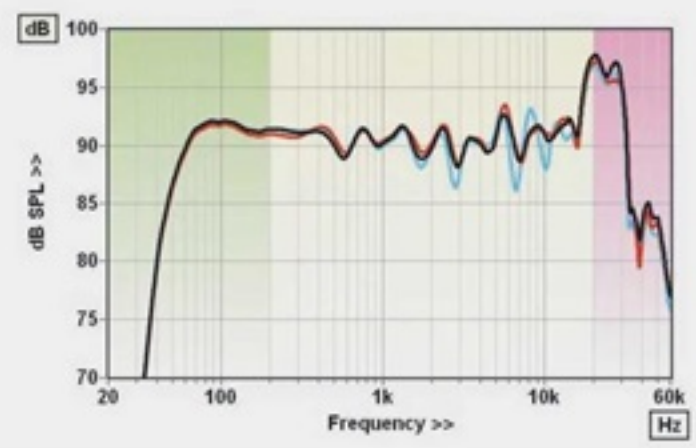
LAB REPORT

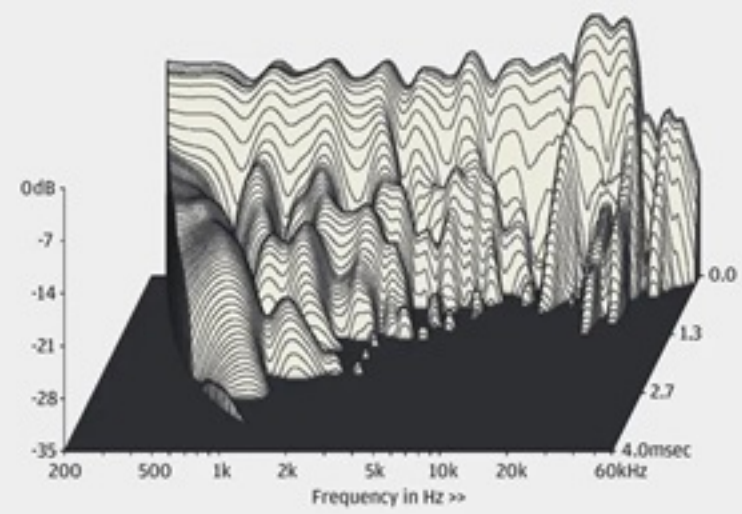
MOFI SOURCEPOINT 10

In addition to all else that a two-way, coincident driver array might offer [see boxout, p59], MoFi's Andrew Jones has also set his sights on another engineering goal – good sensitivity and bass extension combined with a benign amplifier load. The SourcePoint 10 meets its 8ohm nominal/6.4ohm minimum rating with a dip to just 6.35ohm/165Hz and despite the high +50° phase angle from 530Hz-1.37kHz the minimum 2.9ohm EPDR (equivalent peak dissipation resistance) occurs at a lower 101Hz and 425Hz. This will not prove especially troublesome, but while the SourcePoint 10 is inherently 'tube amp friendly', the big rise in impedance to 86ohm/1.7kHz may still result in an emphasis in upper mid (vocal) response depending on the magnitude of the partnering amplifier's source impedance.

Otherwise, the SourcePoint 10's axial response is essentially flat in trend [Graph 1] albeit with a series of 'ripples' contributing to a modest ±2.3dB response error (increasing to ±4.7dB and ±4.4dB, respectively, once the 20kHz tweeter peak is taken into account). However, the plastic-framed grille exaggerates these reinforcement/cancellation modes [blue trace, Graph 1] and should be removed for 'serious' listening. Sensitivity is just shy of MoFi's generous 91dB spec. at 90.4dB/1kHz and 90.5dB/500Hz-8kHz while the pair-matching is acceptable at 0.95dB. Distortion is a low <0.1% through the midrange (re. 90dB/1m) increasing to ~0.5% at bass frequencies where the broad 60Hz-1.4kHz/–6dB bandwidth of the 250mm pulp-coned woofer is augmented by the clean 46Hz tuning of the two rear-facing ports to deliver a respectable 47Hz extension (–6dB re. 200Hz). **PM**



ABOVE: Response inc. nearfield summed driver/ports [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Left, black; right, red; w. grille, blue



ABOVE: There's a minor cabinet mode at 315Hz with broader modes from the large pulp cone >500Hz

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V – 1kHz/Mean/IEC)	90.4dB / 90.5dB / 89.2dB
Impedance modulus: minimum & maximum (20Hz–20kHz)	6.35ohm @ 165Hz 85.8ohm @ 1.7kHz
Impedance phase: minimum & maximum (20Hz–20kHz)	–53° @ 2.6kHz +53° @ 700Hz
Pair matching/Resp. error (200Hz–20kHz)	0.95dB / ±4.7dB/±4.4dB
LF/HF extension (–6dB ref 200Hz/10kHz)	47Hz / 33.5kHz/34.0kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.5% / 0.07% / 1.0%
Dimensions (HWD) / **Weight** (each)	572x368x422mm / 21kg

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AUDIO FILE

Lehmannaudio Decade Jubilee

This artisan phono stage from Germany has been on a journey of refinement lasting rather longer than a decade, culminating, for the time being, in this Jubilee version
Review: **Adam Smith** Lab: **Paul Miller**

With the notable exception of flatscreen TVs and very high-end hi-fi, generally speaking, technology is enabling smaller product solutions. German brand Lehmannaudio has been leading the charge for bijou components since its founding [see boxout, p63], and the principle is perfectly illustrated by the Jubilee variant of its evergreen Decade phono stage, released to celebrate the brand's 30 years, and retailing for £3149.

The Decade Jubilee phono stage and PWX II LC power supply come in matching cases, far deeper than they are wide or high, but our pictures might give the impression they are half-width components, like the Exposure XM series [*HFN* May '17 & Apr '18]. A glance at the Jubilee's rear panel [see p65], where the gold-plated input/output RCAs are locked into place, provides a much-needed sense of scale – each enclosure measures just 110x50x280mm (whd).

STRING THEORY

So these are very compact but also very classily designed, which is to be expected as they command a rather hefty £1550 premium over the standard – and lookalike – Decade phono stage. There is a visible difference, however, as both phono stage and the PWX II LC power supply unit sit on Lehmannaudio's new 3S ('3 String') device feet. These comprise a central three-piece 'suspension' combined with additional absorption materials that the company claims convert micro-vibrations effectively into heat. The result of this is 'improved dynamics and clarity, enhanced bass control and more realistic stage imaging'. Four different variants of these feet are available separately, with a black or silver finish, and start at £159 for a set.

The power supply has been improved over the standard Decade's PWX II model with the addition of thicker copper PCB tracks and a sprinkling of high performance Mundorf capacitors. A 28VA shielded toroidal transformer supplies the main AC section and the unit has twin DC PSU outputs offered on 4-pin XLR connections.

Internally, the Decade Jubilee also claims significant differences over the standard model, not least because the passive RIAA equalisation circuitry is lifted directly from Lehmannaudio's flagship £4599 Silver Cube [*HFN* Jul '15]. This circuitry comprises, among other things, a low-noise input op-amp, a brace of foil capacitors in the RIAA equalisation section, and a dedicated output drive IC, which permits longer cable runs than might normally be recommended.

GOOD VIBRATIONS

All of this componentry is mounted on a four-layer PCB. The main function of these layers, according to company head Norbert Lehmann, is to quell any micro-vibrations that find their way into the board. The circuitry is laid out as dual-mono channels, even extending to dual control relays, rather than using one double-pole type.

RIGHT: Top – linear PSU connects to the RIAA phono amp via an umbilical. Centre – the phono stage combines a FET-input OPA134 op-amp with passive RIAA [centre] and high performance 1510 IC preamp [far right]. Bottom – under the phono box, DIP switches set MM/MC loading

LEFT: Minimalist chassis are all part of the Lehmannaudio DNA as are simple front panel toggles, here selecting MM/MC input sensitivity, +10dB gain, and a steeper subsonic filter. The PWX II LC PSU [bottom] sits below or to the side

Naturally, the Decade Jubilee maintains the key functionality of its cheaper sibling. In its most basic form, the unit offers 36dB of gain for MM cartridges and 56dB for MC types, with these options selected by the right of three switches on the front panel. The next switch adds 10dB of extra gain to either setting, and the third activates Lehmannaudio's 'soft bass roll-off filter'. This acts rather more drastically than its 'soft' name might suggest [see PM's Lab Report, p65] but will surely eliminate any large bass cone 'waffle'.

SOLDERING ON

Further adjustments are available *underneath* the unit – I would grudgingly concede that there really isn't room for much else on the Decade Jubilee – via two sets of DIP switches [see pic, p62]. These select in-built loads of 100ohm, 1kohm or 47kohm, plus a fourth option that switches in an empty resistor location to which a value of your choice can be fitted. Lehmannaudio provides a hex key to open the case, but the operation is probably best left to your dealer unless you are confident with a soldering iron. The remaining options on the DIP switches allow the selection of capacitive loads from 47pF to 1.367nF.

Fit and finish of both units is excellent and they are available with black or silver front panels as standard, or chrome as a £176 special order option. For auditioning, the Decade Jubilee was fed by my Michell Gyro SE/SME 309 set, using both Clearaudio MC Essence [*HFN* Aug '17] and Ortofon 2M Black [*HFN* Mar '11] cartridges.

BIG IMPRESSION

The multi-layer PCB and the new feet are all about minimising the adverse effects of vibration, and while it's impossible to confirm its efficacy in this respect, the Jubilee still makes for a beguiling musical companion. The suppression of background noise is impressive in both MM and MC settings; the lack of hiss when silent, and absence of background noise during playback, are very noticeable indeed. And at times it seemed difficult to associate the largescale, precision performance I was hearing with the compact box(es) on the shelf, because this preamp's sonic stature exceeds its modest physical presence.

Typically, there's no sense of artifice from the Decade Jubilee, which sounds dynamic without subjectively augmenting bass, mid or treble. This doesn't make it sound boring. In fact, nothing could be further from the truth, as it lets your chosen cartridge do the work while faithfully revealing the essential character of both pick-up *and* music. Few cartridges are without some 'colour' of their own, after all...

> 'Its sound is typically pure, open and enthralling'

Using the Clearaudio MC Essence, and with the Decade Jubilee set for MC gain and 100ohm loading, the result was a performance with alluring insight. Lehmannaudio's phono stage brought the main performers to the fore, ensuring their contribution was maximised, but did this without projecting *into* the room unduly. Rather than attempting to place the action right in your lap, it spread it out slightly further back and between the loudspeakers themselves, giving the music a fine depth perspective and scale.

The Decade Jubilee put Danielle Haim's close-mic'd, delicate vocals at the heart of the action in 'Summer Girl' from HAIM's *Women In Music Pt.III* [Polydor 0250813817], while the tuneful, backing bassline was accompanied by tight, rhythmical drumming. On the subject of bass, however, I would steer clear of Lehmannaudio's 'soft bass roll-off',

GERMANY'S VINYL ENGINE

There is a strong argument to be made for Germany being the 'Vinyl Engine' of Europe. Admittedly, Austria's Pro-Ject holds the European crown for sheer production volume when it comes to turntables and phono stages, but the number of different vinyl-related companies that hail from Germany is still surprisingly extensive. Back in the LP's original heyday, the likes of Dual, Perpetuum Ebner and ELAC led the field, and all three companies still exist in Germany today, the latter returning to turntable manufacturing in recent years [*HFN* Jul '17 & Feb '23]. In addition, the likes of Transrotor, Clearaudio, Acoustic Signature, Acoustic Solid, AMG, Dr. Feickert, Scheu Analog, Brinkmann, TW Acustic, STST and more recent arrivals like Langer Audio, are all turntable specialists. Even larger manufacturers more famous for their electronics, such as AVM and Burmester, have added turntables to their model ranges in recent years. Lehmannaudio Vertriebs GmbH, to give the company its full name, may not make turntables, but still remains an active member of this community. The brand was founded in 1988 with its first product being released in 1995 – this was the Black Cube phono stage, a model that is still in production to this day.

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These are available as Special Edition versions of all Puritan Audio products from the Power Strips to the Studio Master Purifiers. Both Furutech UK and Schuko socket variants are available in all models.

The main changes are to the sense of scale and to the frequency bandwidth. The sound stage is enlarged in all dimensions; bass is more extended and has more texture. Clarity is increased so that finest details are readily resolved, with more focus to imaging. Dynamics and transients are notably faster.

All Puritan Audio models are available for a home trial: the Special Edition versions with the Furutech upgrades, and the standard versions without.

The Puritan Audio Special Edition mains purifiers are available exclusively from The Audio Consultants.

1 PSM1512 SE UK £3750
2 PSM156 SE UK £2150
3 PSM136 SE Schuko £1750
4 PS106 DC SE UK £1250

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LEFT: The PWX II LC power supply [bottom], connects to the Jubilee phono stage [top] via an umbilical and 4-pin XLR plugs. A second power outlet is also provided

as it does affect low-end output noticeably; conventional rumble filters are far more subtle in their action. Really, if you need the Decade Jubilee's filter to assuage any bass issues, then you have more serious arm/cartridge matching problems to investigate.

And besides, with filter switch firmly off, the Decade Jubilee crafts an enjoyable bass performance. It doesn't dig quite as deeply in pure 'welly' terms as some of its competitors; for example, I have heard Christine and the Queens' 'Tilted' from the album *Chaleur Humaine* [Because Music BEC5610119] rattle my ornaments more effectively on occasion. However, the unit's sound doesn't ever approach 'lightweight', and more than compensates for a slight lack of ultimate impact with its subtle, revealing bass handling.

Playing Jah Wobble's 'The Sun Does Rise' 12in single [Island Records 12IS 587], the Decade Jubilee captured the reggae-influenced bassline with a lightness of touch that allowed the track to bound along joyously. The bass on this track is deep and lesser components can get a little bogged down by it, but the Decade Jubilee danced through it with ease.

FROM MC TO MM

Switching cartridge for the Ortofon 2M Black and dialling up the Decade Jubilee's MM settings proved to be something of a revelation. Using a £3000+ phono stage for around £600-worth of MM cartridge might seem overkill, but it's not often I've heard any unit close the gap between MM and MC quite so effectively. The 2M Black is, of course, a highly worthy design, but through Lehmannaudio's phono stage it seemed to gain an extra sense of scale and clarity. The result was an enthralling treble performance, with a purity and openness that made everything a compelling listen. Yukimi Nagano's singing on 'Come To Me' from Koop's *Koop Islands* LP [Compost Records 234-1] was breathy and vivid, and locked solidly in the centre of the soundstage, flanked by insistent percussion and lush keyboard and brass.

GRAND DESIGN

Equally, on Mozart's 'Eine Kleine Nachtmusik', performed by the Berliner Philharmoniker conducted by Herbert von Karajan [Deutsche Grammophon 139 004], the Decade Jubilee threw a spotlight on the rich mass of violin strings while offering a formidable sense of scale and grandeur to the whole performance. So, just as a good CD player can bring out the best of every silver disc, Lehmannaudio's diminutive Decade Jubilee phono stage does exactly the same for vinyl.

HI-FI NEWS VERDICT

Given the size of Lehmannaudio's Decade Jubilee, it might be tempting to dismiss it as a cute gadget rather than the formidable phono stage that it is. This flexible two-box solution not only makes the best of MC cartridges, but turns in one of the best MM performances I have heard at any price. If your budget extends this far, then it surely ranks as a 'must hear'. As a bonus, it's bound to fit on your shelf...

Sound Quality: 85%

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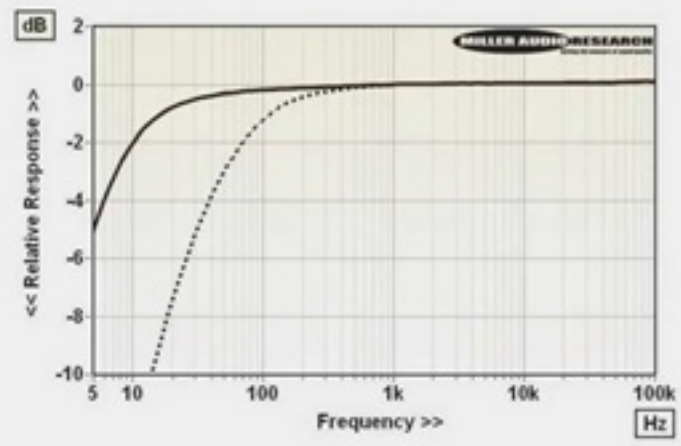
LAB REPORT

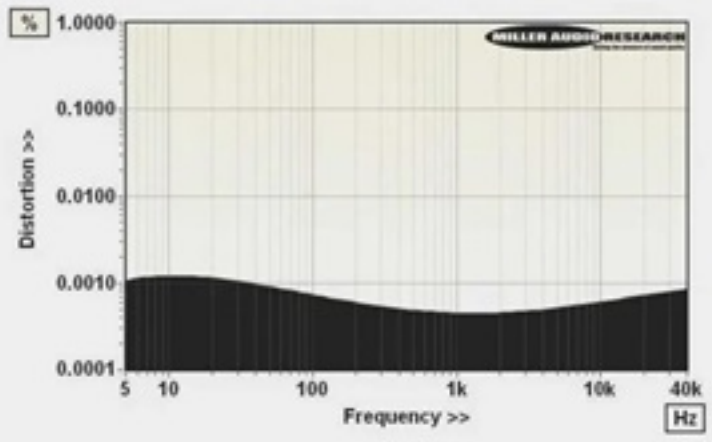
LEHMANN AUDIO DECADE JUBILEE

First tested over 15 years ago [*HFN* Sep '07] and then again three years later [*HFN* Apr '10], the two-box Decade phono preamp has been on a journey of evolution. This new 'Jubilee' model includes the enhanced PWX II LC power supply together with upgrades to the component selection generally, and to the passive eq network in particular. The latter now bears comparison with the costlier Silver Cube model [*HFN* Jul '15] although the Decade's 'hallmark' technical features, including its super-low distortion of <0.001% [20Hz-20kHz, see Graph 2] and extended HF response of ±0.1dB/300Hz-100kHz [see Graph 1] are retained in the Jubilee. As before, this Lehmannaudio phono stage already has a sub-100Hz bass roll-off that reaches 20Hz/–0.8dB (7Hz/–3dB) before the subsonic filter option kicks-in at an early 110Hz/–1dB, dropping to a low 20Hz/–7.5dB and providing a full 17dB attenuation at typical sub-bass warp frequencies [dotted trace, Graph 1]. Unless you're hosting large-cone reflex-loaded speakers on a lightly suspended floor, the LF filter will likely be left *off*.

Again, Lehmannaudio's specifications rather under-value the technical performance of the Decade Jubilee which offers impressive 'real world' A-wtd S/Ns of 86.9dB (MM) and 77.5dB (MC) together with higher input margins than quoted. In practice the rated 36dB/46dB (MM) and 56dB/66dB (MC) gain options arrive at +35.4dB/+45.1dB and +56.1dB/+65.7dB, respectively, while the maximum 45mV (MM) and 4.5mV (MC) inputs in 'high gain' mode are a more generous 50mV and 4.6mV. The clipping limits in standard gain mode are 151mV (MM) and 14mV (MC), the former yielding a solid +30dB headroom if used with a 5mV/1kHz MM pick-up. Finally, residual noise is a low –93dBV (22µV) and maximum output a very high 8.7V. **PM**



ABOVE: RIAA-corrected frequency response from 5Hz-100kHz re. 0dBV (subsonic filter, dashed trace)



ABOVE: Distortion versus frequency re. 0dBV from 20Hz-20kHz (MM standard gain setting)

HI-FI NEWS SPECIFICATIONS

Input loading (MM/MC)	47kohm/100pF-1nF / 100ohm-1kohm
Input sensitivity (re. 0dBV)	17.0mV / 5.6mV / 1.58mV / 519µV
Input overload (re. 1% THD)	151mV / 50mV / 14mV / 4.6mV
Max. output (re. 1% THD) / **Imp.**	8.7V / 9.1ohm
A-wtd S/N ratio (re. 0dBV)	86.0dB / 77.5dB (MM/MC)
Freq. resp. (20Hz-20kHz/100kHz)	–0.8dB to +0.04dB / +0.11dB
Distortion (20Hz-20kHz, re. 0dBV)	0.00045-0.0011%
Power consumption	7W
Dimensions (WHD) / **Weight**	110x50x280mm (each) / 2.4kg (total)

Network-attached player/DAC
Made by: Pixel Magic Systems Ltd, Hong Kong
Supplied by: Sound Design Distribution Ltd, Cardiff
Telephone: 0800 0096213
Web: www.luminmusic.com; www.sounddesigndistribution.co.uk
Price: £4195

Lumin T3

Arguably the 'sweet spot' in Lumin's range of network-attached players, the new T3 retains the core features of its costlier models, including full use of the super-slick app
Review: **Mark Craven** Lab: **Paul Miller**

The product catalogue of Hong Kong's Lumin, neatly divided between four network players, three network transports, and one-off power amp and streaming amp options, deserves the description 'small but perfectly formed'. That would also be an apt way of looking at its T3, a network player/DAC possessing a neat, easy-to-accommodate design and a feature roster designed to satisfy the needs of the performance-hungry streaming audio enthusiast. In essence, it takes much of what's offered by Lumin's flagship one-box P1 [*HFN* Jul '22], but trims the spec. (and size) down to a price point of £4195, almost half that of its bigger brother.

For example, where the £8495 P1 offers a variety of legacy inputs, the T3 – like the earlier T2 model that it replaces – is (nearly) streaming audio all the way. Absent are the coaxial/optical, HDMI, AES/EBU and USB-B inputs of the P1, leaving this player's dual mono ES9028PRO DACs to handle digital files shunted to it via UPnP or streaming services, and from USB storage. Also missing are the P1's electrically isolated fibre network connection in addition to the standard RJ45 Ethernet, FPGA-based 'Femto' clocking system, and twin toroidal power supplies. But enough of what the T3 *doesn't* have…

SMALL WONDER

Offered in black or silver/natural finishes, Lumin's DAC/streamer combines its network audio and DAC stages with a 'precision' analogue output, LeedH digital processing volume control [see PM's boxout, p67], a proprietary app-based control platform, and the company's latest processing engine, which increases both number-crunching power and storage in order to enable 'greater resampling flexibility and futureproofing'.

Lumin's app (for iOS, Android and MacOS) is essential for operation, providing control over a vast range of processing and playback options. These include renaming the player; managing playlist curation; adjusting the search mode from 'filter' to 'find'; tweaking album artwork presentation; selecting between Full Decode, Core Decode and Passthrough of MQA files; and much more.

The interface is slightly Lilliputian on even a large smartphone display, by virtue of its comprehensive nature, but for the most part it's straightforward to use, and Lumin provides a detailed online manual that explains all its functions. In addition to UPnP playback from network shares, it integrates the Tidal, Qobuz and Spotify streaming services, alongside TuneIn Internet radio, while Tidal Connect, Spotify Connect, Apple AirPlay and Roon Ready status enable use with other interfaces.

> 'Forty-one years on, the song still raised goosebumps'

ROCK SOLID

The T3's 350x60x350mm (whd) CNC'd alloy casework will be familiar to owners of the T2, although there's been an upgrade here too, as Lumin says it has adopted the 'silky surfacing process' of the P1, making this slender player less of a finger-print magnet. The design catches the eye with a curved front panel, while the lip that extends over the rear connections is also unusual – this can make it a *bit* fiddly to insert cabling and USB storage, but does allow for a tidy installation once hooked-up. Also, Lumin's display is crisp and bright,

RIGHT: Screened PSU [far right] feeds the T3's mainboard processor [under a heatsink, centre] with Altera Cyclone IV and XMOS USB processors [bottom] and balanced analogue output board [left] with two ES9028PRO DACs [upper left]

imparting a decent amount of at-a-glance information including track/artist name along with sample rate and bit-depth.

Native file handling reaches DSD512 and 384kHz/32-bit PCM (including FLAC, ALAC, AIFF and WAV formats), and this is joined by user-selectable up- and downsampling covering myriad options to DSD256/384kHz (there is also a native playback mode). Post DAC conversion, the T3 then offers both balanced XLR and unbalanced RCA connections, via a redesigned buffered analogue output stage boasting 'audiograde' capacitors.

Next to these connections are digital outputs on USB-A and BNC (S/PDIF) that allow the T3 to partner an external DAC. The USB port supports native DSD and PCM to 384kHz/32-bit while the BNC output is limited to 192kHz/24-bit and DSD64 (via DoP). But it's likely these ports will go unused by most owners of the T3, not least because Lumin already sells the £1895 U2 Mini. This is a network transport that features the new processing platform and is aimed at third-party DAC owners.

Setup proves straightforward. In my system, Lumin's app did as advertised and automatically 'found' the Ethernet-connected T3 in short order. Indeed, this DAC/streamer's sheer ease-of-use is well worth highlighting, so while the unit's overall build and smart design already brings with it a healthy dose of 'pride-of-ownership', this feeling only grows when you start to use it. The link between app and hardware is rock-solid (the absence of conventional input switching suggests Lumin's optional £225 IR remote is largely redundant here), and the T3 is very responsive to controls. It just 'works' in a manner that isn't always guaranteed when it comes to network audio gear.

ABOVE: Available in black or natural finishes the T3's slim but very solid chassis features a deep set display (that can be extinguished). The control/config menu is in Lumin's app

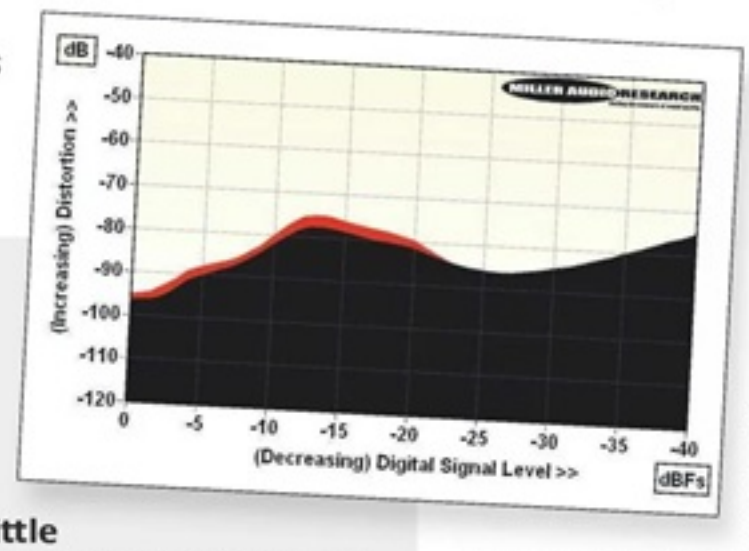
IN PLAIN SIGHT

Up and running, both via streaming services and networked/USB files, the Lumin T3 impresses from the get-go. Its sound is exactly what you want from a digital audio player – sublime levels of clarity and insight with a feeling of transparency. There are no filter options here to mess with, beyond Lumin's custom resampling, but this reinforces the idea that the T3 is giving you an unblemished performance, its DAC and analogue output simply providing a white-glove service for your music. Audiophile recordings sound immaculate, while grittier, more 'raw' tracks lose none of their edge.

The T3's pristine playback also has you looking at old tracks in a new light. I thought I'd heard it all from Bon Jovi's rock ballad 'Wanted Dead Or Alive' [*Slippery When Wet*; Island Mercury, 96kHz/24-bit], knowing every beat, lyric, and artificial harmonic in Richie Sambora's guitar solo off by heart. Through Lumin's T3, however, the song took on a more polished, more detailed quality than I recall. Keyboards sounded fuller, percussion crisper, guitar riffs more cutting. Follow-up track 'Raise Your Hands' is more up-tempo and chaotic, and the player seemed to shepherd its various elements with precision while unleashing all the energy in the rhythm section and Jon Bon Jovi's vocal yelps.

It's an open sound, even with these dense pieces, but not to the point where the overriding feel or vibe becomes lost. So Ted Nugent's 'Stranglehold' [*Ted Nugent*; Epic, 96kHz/24-bit] sounded as woozy and ⟳

LEEDH PROCESSING



Digital volume controls have generally had a bad press since the arrival of variable-output DACs, but while the technical compromises inherent in the earliest implementations most certainly had a subjective (audible) consequence, that's not always the case with today's advanced processing software. Before we dive a little deeper, I'll clarify that we are talking about digital attenuators here rather than either digital volume with gain or the digitally-governed analogue attenuators used in many of today's amplifiers [see p70]. The earliest digital controls were blunt instruments, lopping full bits of data from each, in those days, 16-bit words to achieve incremental reductions of up to 6dB. The greater the attenuation the greater the error in resolution/linearity and, as this quantisation error was correlated to the signal, it manifested as a further increase in harmonic distortion as the 'volume' was reduced.

Latterly, a form of digital dither was added during D/A conversion to randomise these fixed errors so they appeared as a uniform increase in noise rather than distortion harmonics. Nowadays it's more common for, typically, 24-bit audio data to be processed in 32-bit or 64-bit wordlengths so both the volume coefficient and audio sample may be accommodated with a reduced rounding error. LeedH processing, the brainchild of Gilles Milot (*www.acoustical-beauty.com*) takes a different approach to minimising rounding errors without DSP-heavy overhead. Instead of striving for precise steps in level, LeedH calculates the best volume coefficient to deliver *approximate* steps in level (for example –1.2dB, –1.8dB, –3.25dB and –4.08dB in place of –1.0dB, –2.0dB, –3.0dB and –4.0dB, respectively) in order to realise the minimum rounding error. Dither is also still applied to decorrelate any residual distortions [inset Graph shows THD vs. level at volume position '60%', or –20dB, with and without LeedH processing (black/red)]. So, while the 'imprecise' volume steps will not be troublesome, there is evidently a small but measurable improvement in distortion. PM

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ABOVE: Simplicity itself as the diminutive T3 offers a USB-A port and wired Ethernet input (384kHz/32-bit; DSD512) alongside an S/PDIF output on BNC (192kHz/24-bit) and fixed/variable balanced/single-ended preamp outputs on XLRs/RCAs

improvisational as ever, the guitar solo flourishing above the effects-heavy bassline, while the textural juxtaposition between David Bowie's smooth vocals and Freddie Mercury's snarls on Queen's 'Under Pressure' [*Hot Space*; Virgin/EMI, 44.1kHz/16-bit] ensured the song still raised goosebumps, 41 years on.

Lumin's manual is coy about the subjective impact of its up/downsampling processing, saying 'you may prefer the upsampled audio – try it and see', and working against A/B comparisons is the fact that any change causes the T3 to return to the start of your playlist, which is irksome. Note that Lumin has avoided any asynchronous processing, thus giving its processor less work to do – options with 44.1kHz media, for instance, are 88.2kHz, 176.4kHz, 352.8kHz, *etc*.

GRAND PIANO

My experimentation yielded no eureka moment, apart from some aspects of 44.1kHz files arguably gaining a little more 'solidity' when upsampled, such as Johnny Cash's bassy vocals on 'If I Could Read Your Mind' [*American V*; American Recordings, 44.1kHz/16-bit]. Also, when running the unit straight into a power amp, there was the slight constraining effect of switching off the LeedH volume processing. It's set as a default for a reason.

Other niggles? Files played from USB media remain in the T3's playlist (which doesn't discriminate between source) even after the external SDD/HDD is removed. Learning how to clear the playlist (which can accommodate 2000 tracks) is therefore handy and will avoid any confusion if you try 'playing' a file that's no longer available.

Back to the T3's way with music, and its excellent presentation of instrumental subtleties. Christian Grøvlen's recital of Bach's Chromatic Fantasia and Fugue in D minor [2L DSD256 download] came across with the classical pianist's techniques on full display, sustained notes ringing out, fingers tumbling over keys. Dynamic shifts in his playing, the resonant tones of the piano, and the physical nature of the instrument itself were all conveyed.

Lumin's DAC snapped this piece into focus, making it sound intimate and lifelike. A similar feeling came via Alice In Chains' 'No Excuses', a highlight of the band's recorded-to-tape semi-acoustic EP *Jar Of Flies* [Columbia, 44.1kHz/16-bit]. The opening bars of popping percussion, captured via a multitude of mics, saw Sean Kinney's drum kit spread out across the soundstage, placing the listener close. Guitar and bass followed, both rich in tone and butter-smooth, and the fulsome nature of the rest of track revealed the T3's talent for marrying its resolving prowess with a weighty and largescale sound.

In a nutshell, Lumin's well designed app encourages long listening sessions – and so does the performance of its hardware. Fed the dramatic, electronic soundscapes of Daft Punk's *Tron Legacy* soundtrack album [Walt Disney Records, 44.1kHz/24-bit], the T3 matched it beat-for-beat, serving up ominous deep throbs, driving drums and stabbing synths. Switch to the title track from The Rolling Stones' *Let It Bleed* [ABKCO Records, 88.2kHz/24-bit], and its detailed but sympathetic playout of this rollicking, piano-laden blues jam will have you shaking your hips and pursing your lips like Mick Jagger.

HI-FI NEWS VERDICT

More succinctly featured than Lumin's big-boned P1, but adopting much of that unit's technology, the T3 probably represents the sweet spot in the company's network player range. It's a tasty treat too, wrapping up superb sound quality, slick app-based control and wide-ranging playback options in the sort of high-quality, stylish casework you'd expect at the price. Digital audio enthusiasts will enjoy.

Sound Quality: 88%

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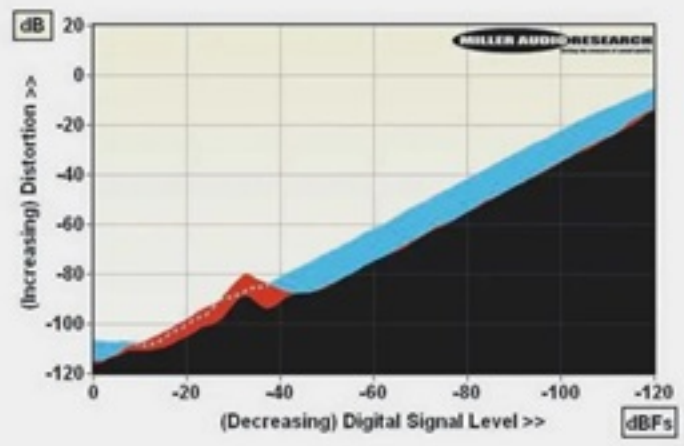
LAB REPORT

LUMIN T3

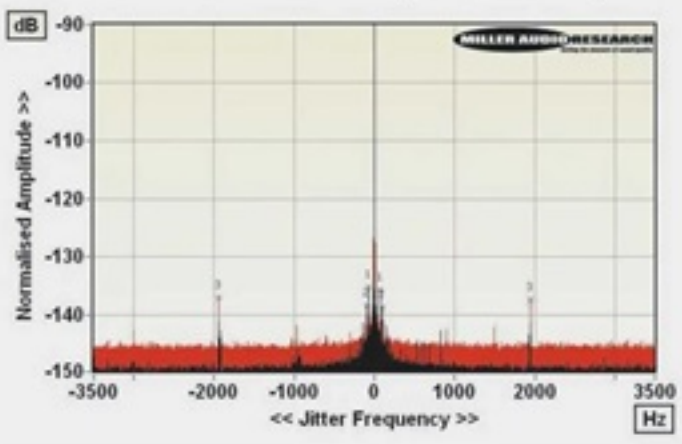
The T3 is currently Lumin's most accessible server solution that combines the 'Leedh Processing' volume algorithm [see boxout, p67] with its comprehensive resampling software and a brace of top-notch ES9028PRO DACs. The performance is very solid – maximum output is a healthy 5.0V from a usefully low 10ohm source impedance (balanced) while the A-wtd S/N ratio is a very wide 118dB, via both network and USB-A inputs. The lowest distortion – just 0.0001-0.00025% (re. 20Hz-20kHz) – is achieved at its *peak* output [Graph 1, below] rather than in the more common range between –10dBFs to –20dBFs seen with contemporary DACs. Nevertheless we've seen this resilience from Lumin's balanced output stages before [*HFN* Jul '22].

The ESS DAC offers a range of advanced digital filters [*HFN* Apr '22] but for the T3 Lumin has chosen the 'slow roll-off/linear phase' option. This trades a merely adequate 24dB stopband rejection and early treble roll-off (–6.3dB/20kHz with CD/48kHz media) for a significant reduction of pre/post 'echoes' in the time domain. Higher sample rates also experience a slightly premature HF roll-off but as this occurs well outside of the audioband (–9.6dB/45kHz and –16dB/90kHz with 96kHz and 192kHz media, respectively) there is no direct subjective impact.

Maximum output is 0.5dB higher with the T3 in native sampling mode but the S/N is reduced by 1.5dB and distortion is higher over the top 40dB of its dynamic range [red trace, Graph 1]. Correlated jitter is broadly unchanged by Lumin's upsampling, remaining a vanishingly low 11-12psec over all sample rates, whether resampling is invoked or not. However, synchronous resampling (48kHz to 192kHz, *etc*) does result in a decrease in uncorrelated phase noise/background noise [see Graph 2]. PM



ABOVE: THD vs. 48kHz/24-bit digital level (1kHz, black; 20kHz, blue; 1kHz Resampling Off, red)



ABOVE: High resolution 48kHz/24-bit jitter spectrum via network (resampled to 192kHz, black; native, red)

HI-FI NEWS SPECIFICATIONS

Maximum output level / Impedance	5.01Vrms / 10ohm
A-wtd S/N ratio (resampling on/off)	118.0dB / 116.5dB
Distortion (1kHz, 0dBFs/–30dBFs)	0.00009% / 0.0025%
Distortion & Noise (20kHz, 0dBFs/–30dBFs)	0.00025% / 0.0036%
Freq. resp. (20Hz-20kHz/40kHz/75kHz)	–0.0 to +3.6dB/–9.6dB/–16dB
Digital jitter (48kHz / 96kHz / 192kHz)	11psec / 11psec / 10psec
Resolution (re. –100dBFs / –110dBFs)	±0.1dB / ±0.2dB
Power consumption	8W (8W 'standby')
Dimensions (WHD) / **Weight**	350x60x350mm / 6kg

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NAD C 3050 LE

It may look like the 3030 from 1976, but beneath the faux-retro exterior of NAD's celebratory, limited edition C 3050 integrated beats the heart of a 21st century amp

Review: **Jamie Biesemans** Lab: **Paul Miller**

Since its founding in 1972 NAD has grown into one of the mainstays of the hi-fi industry, and to celebrate its first half-century of existence, the brand has launched the C 3050 LE streaming amplifier. Taking cues from forerunners such as the C 700 [*HFN* Feb '22] and the C 389, it's a just-add-speakers package, including HDMI connectivity and an MM-only phono input.

That's 'LE' for 'Limited Edition', by the way, indicating the amplifier is one of only 1972 units that will be produced. In the US the C 3050 LE is sold for $1972, subtly ramming home the point that NAD was established in that year. In the UK we have to dish out a little more at £1799, and the EU price is a whopping €2499.

STANDARD SIBLING

Most of the units are sold by now, so you'll have to get your skates on if you still want to grab a C 3050 LE. Luckily, there will be another chance this summer, when NAD will launch a regular and virtually identical NAD C 3050. You'll miss out on the real walnut finish and some vintage design elements, including the legacy 'New Acoustic Dimension' script that will be replaced by a standard NAD logo. But not to worry, the backlit VU meters and front panel with push-button input selection will remain part of the package.

On top of that the C 3050 LE is loaded with BluOS streaming and Dirac room correction, although again the standard C 3050 will miss these features. However, they can be added by sliding in the appropriate MDC2 module at the rear left of the chassis [see inside pic, right]. The '3050 will sell for £1299 but as the MDC2 BluOS-D card retails at £479, you'll end up at more or less the same price point.

The C 3050 LE's exterior is a fitting homage to the brand's beginnings [see PM's boxout, p71], but the inner workings and broad connectivity have a very different story to tell. There's nothing vintage under the hood here, so there's always the chance its choice of streaming card, 'digital' preamp and analogue Class D power modules for a revivalist product might raise eyebrows. NAD possesses a cunning marketing department but this is not an attempt to hoodwink hi-fi enthusiasts pining for an authentic throwback to the golden age of hi-fi!

AHEAD OF THE GAME

In truth, the company was in the vanguard of Class D adoption [*HFN* Jun '10] just as the NAD mothership, Lenbrook, was early to the streaming game with its BluOS platform. Dropping a random Class AB solution into a wooden box and labelling it an anniversary product would not have been an authentic NAD product either. From that viewpoint it's apt that NAD should combine current-state technology with old-timey industrial design.

> 'There are significant improvements to be found'

With the MDC2 expansion slot filled with the new BluOS-D module, the C 3050 LE possesses extensive streaming capabilities. Leading the charge is BluOS, a very mature platform that's outgrown its roots as a Sonos challenger to encompass high-resolution playback, a broad support of services (including some real niche ones, like the Neil Young Archive), and multiroom coupling with a wide range of hi-fi and CI products.

It's perfectly fine just using the BluOS app with a single C 3050 LE, but also reassuring that you can use the software to, say, stream an attached turntable to some wireless speakers in the kitchen. The BluOS app itself is on the cusp of receiving a new look, so there's not much point in critiquing the old interface I still used while testing. AirPlay 2, Spotify Connect, Bluetooth and – still uncertified – Roon are also available to stream.

Dirac room correction is another standout feature at this price. The software isn't cheap to license and implement,

RIGHT: The Class AB 3030 with its linear PSU never looked like this! By contrast the C 3050 LE features a switchmode PSU [far right] feeding Hypex UcD102 Class D amplifiers [right], BT and BluOS modules [left] and PCM5242 DAC [centre]

which is why it generally appears on more expensive kit. As per usual, the included licence allows for room correction up to 500Hz – Dirac can build filters adjusting the full frequency range, but this requires a separate licence. This might sound like cost-cutting from NAD, but adjustments below 500Hz generally suffice to tackle bass-related issues, such as room modes.

As Dirac is executed in DSP, all analogue sources must first be converted to digital. Radically, the C 3050 LE does this in all cases [see PM's Lab Report, p73], even if you elect not to use the Dirac function. If you are an 'analogue diehard' then this might be a leap too far...

VINTAGE VERVE

Sonically, the C 3050 LE remains true to its NAD heritage. Although it doesn't possess astronomical power reserves, the amplifier is very capable and boasts an appealing, full-bodied bass extension, presenting a wall of sound which isn't too dense or dull. Equally, it isn't overcritical of source material. Listening to a range of sources, including Internet radio and Bluetooth streaming, via my DALI Rubicon 2 standmounts, I was struck time and again by how well the C 3050 LE handled low-quality streams.

Even when casually listening to HiFi Sean and David McAlmont's *Happy Ending* [Plastique Recordings FAKE129CD] over Bluetooth, there was an expansive, relatively uncompressed feel to soul-infused pop songs such as 'Beautiful' and 'Maybe'.

ABOVE: Illuminated meters help cement the vintage aesthetic against a backdrop of analogue *and* digital input selection, BluOS capability and digitally-governed volume

The aptX support probably helps, but regardless, it didn't sound like the lesser streaming option on offer.

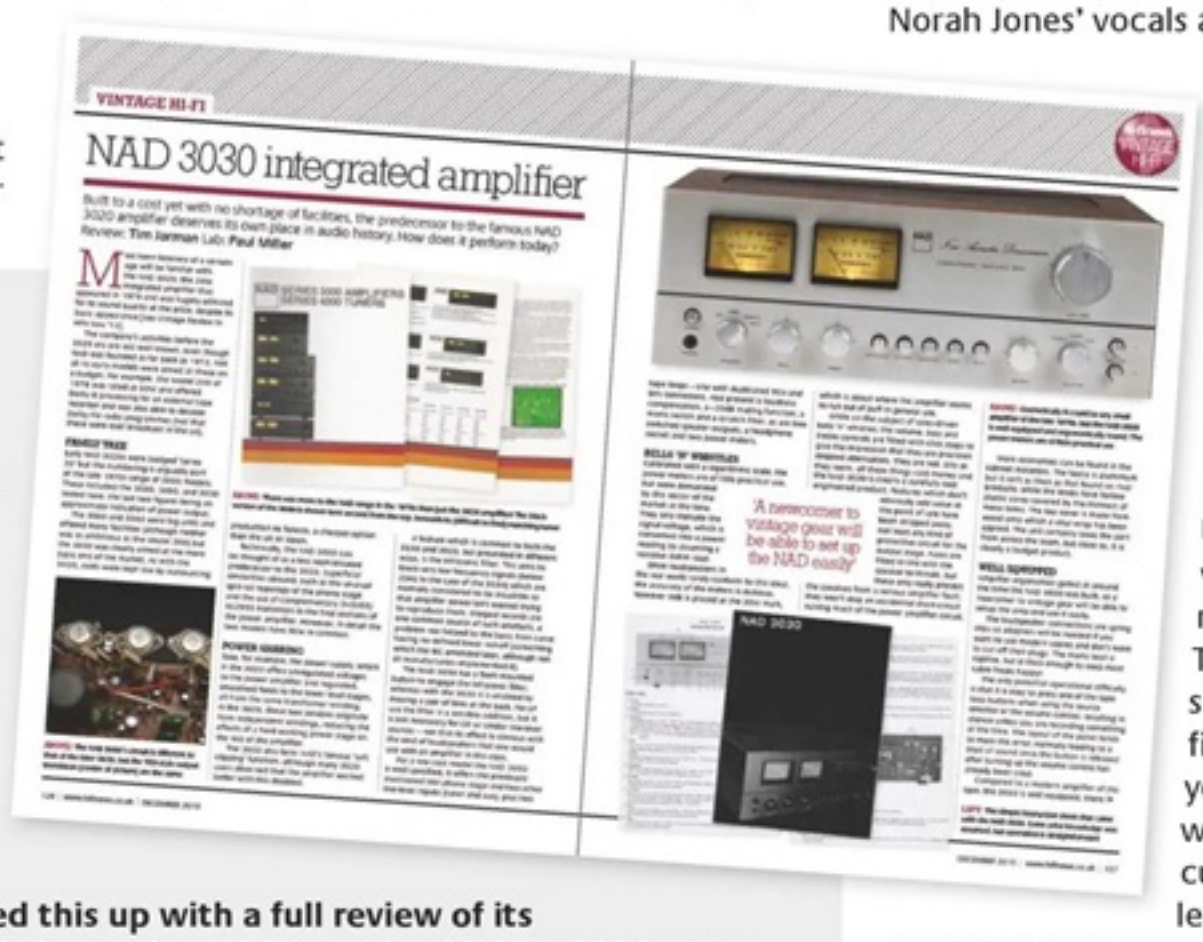
Compared to up-range NAD integrateds with Purifi amplification [*HFN* Oct '22], the C 3050 LE is a little more colored and a bit less precise. Again, that helps with lesser source material, but also adds warmth and organic character to 'The Sun Won't Set' [*Traces Of You*; Deutsche Grammophon 479 1051], a captivating song off-setting Norah Jones' vocals against half-sister Anoushka Shankar's sitar playing.

PUCKER UP

Taking measurements for Dirac isn't too time-intensive on a two-channel system, although instead of the included puck-shaped mic, I used a UMIK-1, opting for a very focused series of nine measurements. The C 3050 LE has five slots you can upload filters to, which allows you to experiment with different target curves. There is a level decrease when enabling Dirac, which makes comparisons more challenging, but this is to increase headroom for processing, says NAD.

Speaking from experience, fiddling around in Dirac can be a bit of a rabbit-hole, but at the end of the tunnel there are significant sound quality improvements to be found. Case in point, with both Taylor Swift's *Midnights* [Republic Records; 48kHz/24-bit] and *Beethoven: Triple Concerto; Symphony No.7* [Deutsche Grammophon 483 8242], featuring Yo-Yo Ma, Anne-Sophie Mutter and Daniel

THE NAD 3030


VINTAGE HI-FI

NAD 3030 integrated amplifier

Built to a cost yet with no shortage of facilities, the predecessor to the famous NAD 3020 amplifier deserves its own place in audio history. How does it perform today?

Review: Tim Jarman Lab: Paul Miller

A newcomer to vintage gear will be able to set up the NAD easily

The first NAD product to appear in these pages was the 300 receiver [*HFN* Apr '77] but it was the £69 3020 integrated amplifier [*HFN* Jan '80] that really set the brand alight, in the UK at least, courtesy of distributor Hi-Fi Markets who promoted it as part of a very successful budget turntable/amp/loudspeaker package. We revisited the 3020 as part of our unique Vintage Review series [*HFN* Nov '12] and followed this up with a full review of its illustrious forebear, having finally located a 'NOS' sample of NAD's 3030 some years later [*HFN* Dec '15 and inset].

The cheapest of three 3000 series amplifiers from 1976, the 3030's unusual split-rail phono stage and complementary Class AB power amp, using 2N3055/MJ2955 transistors, were carried over into the later 3020, although the latter was otherwise a more sophisticated design. Rated at 2x30W/8ohm, NAD's 3030 delivered a full 2x33W/8ohm and 2x48W/4ohm with 41W, 81W, 99W and 74W (8.6A) available under dynamic conditions into 8, 4, 2 and 1ohm loads. Naturally, with CD and the ensuing digital audio revolution a decade away, the 3030 was 'analogue' through-and-through. Despite its tone controls, loudness, mono, infrasonic and hi-cut filters, the 3030 was a simpler amplifier for simpler times and a lifetime away from the BluOS-equipped Class D C 3050 LE seen here. PM

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Hi-Fi Choice RECOMMENDED

hi-finews EDITOR'S CHOICE

CHORD™ COMPANY

ABOVE: The 'LE' version of the C 3050 is distinguished by its pre-fitted wireless/wired LAN MDC2 BluOS module [left] alongside BT, HDMI (eARC) and coax/optical digital ins, MM/line inputs, pre out/main in jumpers and A+B 4mm speaker terminals

Barenboim, Dirac increased the sense of resolution and accuracy significantly. It tightened up the bass on Swift's 'Anti-Hero', but the difference was more marked with the classical works, as there is more microdetail to expose. Milage will vary depending on the acoustics of your room, of course.

SPINNING DISCS

The C 3050 LE's phono input is converted into the digital domain, possibly making some vinyl lovers hesitate, but with a Pro-Ject X1 [*HFN* Aug '19] and Pick it S2 MM cartridge playing *The Chopin Project* [Mercury Classics 00028948115068], I can't claim I immediately disliked what I heard, or that I was hearing something 'digital'. Even with Olafur Arnalds hitting the highest notes on his violin there was no sign of distortion or lack of detail. But the performance, which should be spacious and on a grand scale, felt a bit flat, missing some dynamics.

Spinning the album again, but with the Pro-ject X1 looped through a Primare R15 phono amplifier and into a line input on the C 3050 LE, there was some extra depth and a more balanced tonality on show. An external stage is therefore one clear upgrade path for this unit, although I would still rate the phono amp as quite acceptable. And on the plus side, NAD's approach does allow you to apply room correction on all sources, including a turntable, which some will welcome.

LEFT: NAD's SR 10 full system remote gives direct access to volume, mute, input selection, Dirac room correction and A+B speaker selection

After a discussion with editor PM about NAD's HybridDigital technology – which, from the standpoint of the Class D Hypex power amp modules, is not remotely 'digital' – I was curious to hear how the C 3050 LE's preamp stage was influencing the overall performance. To this end I connected an iFi Audio NEO Stream [*HFN* Mar '22], which has its own volume control, straight into the C 3050 LE's 'Main In' RCAs [see rear panel pic, above]. This bypasses all the amplifier's digital stuff in the onboard preamp, converting the C 3050 LE into a 'pure' analogue Class D power amp.

21ST CENTURY TOY

Listening to Alice Sara Ott's *Chopin: Complete Waltzes* [Deutsche Grammophon 477 8095] without the C 3050 LE's preamp stage found added clarity and just a tad of extra agility to the piano runs. Does that make the price paid for all that digital goodness offered by BluOS and Dirac, plus the built-in DAC, too high? That's stating the case too strongly, next to losing sight of what this commemorative model is about: offering a vintage feel but certainly not an old-fashioned sensibility when listening to music. And with those pre out/main in links, you have the choice to either indulge or bypass those 21st century features!

HI-FI NEWS VERDICT

There's no faulting the broad functionality offered by NAD's C 3050 LE. It truly is a do-it-all, combining excellent streaming options with broad connectivity. The inclusion of Dirac is a boon, if you are willing to embrace significant digital processing. Some compromises are made, but at the end of the day you get a vintage box with the latest tech inside. What's that about having your cake and eating it?

Sound Quality: 84%

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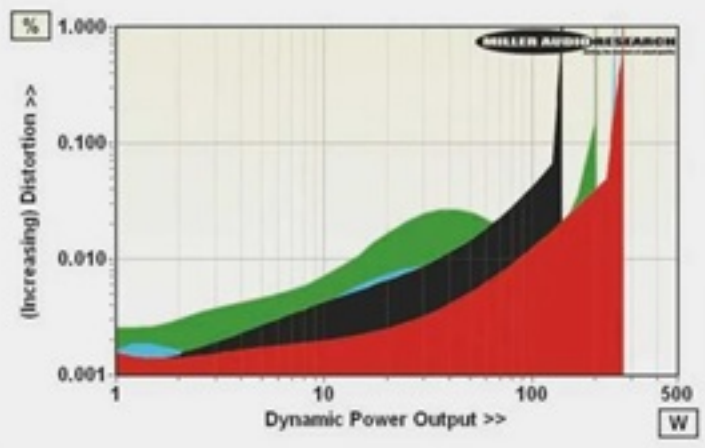
LAB REPORT

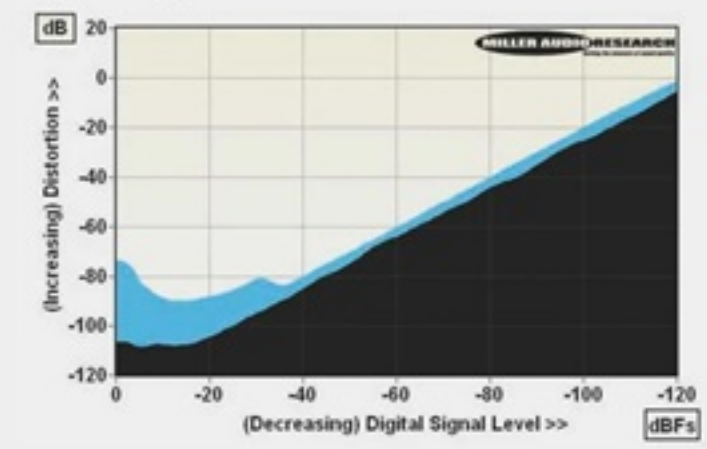
NAD C 3050 LE

Tested via its analogue line input, the C 3050 LE's power output and distortion depend on the position of the volume control because the input ADC (sampling at 48kHz) can clip *before* the output. The frequency response is also limited to 23kHz (re. –3dB) unless the amp is used via its 'Main In' RCAs which route directly to Hypex's *analogue* UcD102 v1 Class D module. Bypassing the ADC/DAC and volume control, the C 3050 LE's overall gain ends up fractionally higher at +29.1dB (from +28.6dB), the A-wtd S/N improves from 78.7dB to 81.5dB (re. 0dBW) and the response stretches smoothly out to 48kHz/–1dB and 100kHz/–5.3dB. The consistently low 0.035ohm output impedance (20Hz-20kHz) and load tolerance of the Hypex modules has already been well documented in *HFN* Lab Reports, NAD squeezing a full 2x120W/8ohm and 2x200W/4ohm from the UcD102 here with enough headroom 'engineered in' to yield 139W/8ohm and 275W/4ohm under dynamic conditions [see Graph 1]. Output is limited to 252W/2ohm and 201W/1ohm by NAD's fast-acting protection (the bright red meter illumination is quite a show!).

The digital performance is in part determined by the TI PCM5242 DAC, implemented here with a standard linear phase filter offering a modest 44dB of stopband rejection and a response (via the pre outs) that reaches out to –0.07dB/20kHz, –0.7dB/45kHz and –1.8dB/90kHz with 48kHz, 96kHz and 192kHz media, respectively. The A-wtd S/N ratio is a respectable 108dB and low-level linearity is good to within ±0.2dB over a 100dB dynamic range while THD falls to as low as 0.0005-0.004% (20Hz-20kHz, –10dBFs). Correlated jitter is a low ~10psec but a more significant uncorrelated phase noise was seen on test. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 14.2A



ABOVE: Distortion versus 48kHz/24-bit digital signal level (preamp output; 1kHz, black; 20kHz, blue)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	120W / 200W
Dynamic power (<1% THD, 8/4/2/1ohm)	139W / 275W / 252W / 201W
Output impedance (20Hz-20kHz)	0.035–0.039ohm (415ohm/pre)
Freq. response (20Hz-20kHz/100kHz)	–0.00 to –0.10dB / –5.3dB
Digital jitter (48kHz/96kHz)	~10psec / ~15psec (correlated)
A-wtd S/N ratio (re. 0dBW/0dBFs)	81.5dB (Analogue) / 108.1dB (Dig)
Distortion (20Hz-20kHz: 0dBW/0dBFs)	0.001-0.008%/0.0009-0.025%
Power consumption (idle/rated o/p)	23W / 227W (1W standby)
Dimensions (WHD) / **Weight**	435x110x355mm / 10kg

BT/USB DAC-equipped integrated amplifier. Rated at 80W/8ohm
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Supplied by: Henley Audio Ltd, UK
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Web: www.project-audio.com; www.henleyaudio.co.uk
Price: £1049

AUDIO FILE

Pro-Ject MaiA DS3

Nearly ten years on from its first 'My audiophile integrated Amplifier', or MaiA, Pro-Ject launches its latest compact, but feature-packed, phono/digital integrated amplifier

Review: **Jamie Biesemans** Lab: **Paul Miller**

Mini hi-fi, very much 'a thing' in the 1980s, is still breathing today thanks to Heinz Lichtenegger's Pro-Ject brand. 'Small is better', according to Pro-Ject's head honcho, stating that modern music lovers want great sound without bulky hi-fi gear. Surprisingly, the MaiA DS3 integrated amplifier tested here is one of the larger of Pro-Ject's 'Boxes', being part of its DS line which, together with the RS line, trades some compactness for improved electronics. The company's budget E and more accomplished S series are the home of truly diminutive devices.

But make no mistake, the MaiA DS3 – 'MaiA' stands for 'My audiophile integrated Amplifier' – might only be the size of a fat George R.R. Martin novel, but it has a lot going for it. There are genuinely few equals sporting such a small footprint and wide-ranging feature set while boasting a substantial 2x80W/8ohm power output [see PM's Lab Report, p77].

The new amp is a third-generation DS product, launched alongside a cheaper MaiA S3 amplifier. The £1049 DS3 is the 'full ops' version, offering not only a new digital stage but also nine inputs, including a versatile MM/MC option – a rarity at this price point. Furthermore, while Bluetooth isn't unusual on today's amplifiers, a full aptX HD codec certainly is.

NOT ONE BOX, BUT TWO...

You can hardly accuse the MaiA DS3 of being flamboyant. It's all very no-nonsense, with a sturdy aluminium chassis available in matt black or silver, but its restrained aesthetic doesn't exude an air of cheapness. There's a solid feel to the DS3, making it easy to imagine the unit discreetly parked on a vintage sideboard. Of course, you'll have to find a place behind the furniture to hide the oversized power supply. Relative to the MaiA DS3, it's gigantic [see PM's boxout, p75].

If you're feeling a bit more extravagant, Pro-Ject offers optional wooden panels that attach magnetically to the sides. There are three finishes, including a walnut that'll match nicely with the walnut versions of Pro-Ject turntables such as The Classic [*HFN* Aug '16] or the X2 B [*HFN* Sep '22].

PUSH THE BUTTON

The lack of a display, large buttons or backlit dials fits the minimalist concept, but a large motor-driven volume dial livens up the DS3's front panel. To the left is a headphone output, and to the right are four tiny push buttons. Two of these are used to advance through the inputs, the active input being indicated by a blue LED next to a barely legible label. Another selects +6dB preamp gain. More control comes via the supplied remote [see p77], which feels bloated as only five keys are relevant, but you can add other DS boxes, such as the CD Box DS3 CD player, and control them with the same remote.

For this update to the DS3 there's a slightly upgraded DAC stage, based around a Burr-Brown PCM1795, and more powerful Class D amplification. This allows the compact amp to project – pardon the pun – a lot of power, something immediately noted when hooking it up to a pair of DALI Rubicon 2 standmounts, playing the latest release from New Zealand singer-songwriter Kimbra, and receiving some potent bass in return.

The layout of the rear panel is neat, letting you connect sources easily, such as a TV via Toslink optical or a computer via USB-B. This last port should be utilised to feed the digital stage the highest

RIGHT: Packed PCB includes edgewise MM/MC phono card [bottom left], BT/wi-fi module [centre right], TI PCM1795 DAC [centre], headphone amp [top right], motorised volume [top] and Class D amplifier on heatsink [far right]

LEFT: Available in matt black and silver finishes, the MaiA DS3 can be accented with optional wooden sidecheeks. Small buttons cycle through the available inputs while enabling BT pairing and an additional +6dB preamp gain

quality hi-res files, up to 192kHz/24-bit LPCM or DSD256. Handily, when you start streaming to a connected network transport, such as the iFi Audio NEO Stream [*HFN* Mar '23], this will wake the MaiA DS3 out of standby. Finally, the 4mm loudspeaker cable connectors *look* small, but the banana plugs of my QED and Tellurium cables fitted without issue.

A CLASS D ACT

You could say Pro-Ject's MaiA DS3 is a perfect example of the dangers of cognitive dissonance. It's small, says the brain, so it should sound small too. Or underpowered, at least. But the Flying Mole-sourced Class D modules provide the amplifier with ample reserves. It's very confident and authoritative at the low-end, driving both the Rubicon 2s and Canton's Reference 7K floorstanders [*HFN* May '22] with little apparent effort. And even if it doesn't exhibit extreme bass control or extreme definition, that doesn't spoil the general sense of fun, as the MaiA DS3 adds both a touch of warmth and just a little bit of sparkle to make it interesting. Hearing it next to NAD's retro-styled C 3050 LE integrated amp [see p70], with the same speakers, revealed similarities but also stark differences, the MaiA DS3 sounding warmer but also with more 'forwardness' in the upper midrange.

> 'Playing live, they can induce cracks in concrete'

In the past few years Texan trio Khruangbin have garnered a lot of praise for combining multiple genres into a laidback, airy sound, as witnessed on last year's *Texas Moon* EP and the earlier *The Universe Smiles Upon You*. Surprisingly, their trademark style fits well with the compositions of Mali's musical grandee Ali Farka Touré. Khruangbin's *Ali* homage [Dead Oceans DOC274; 48kHz/24-bit] features his son, Vieux, and crosses over from traditional Mali riffs to more dub and reggae-infused territory. There's a languid feel to many tracks on this album, which suited the DS3 and DALI speakers nicely.

With 'Diarabi' and 'Alikarra', the MaiA DS3 was almost lazy, laying down a thick bass track backed up by the typical droning Malian guitar – like most contemporaries Touré uses a non-Western tuning. The chants and the chorus pedal-augmented guitar line on 'Tongo Barra' were presented with good separation and crisp definition across a decent-sized soundstage.

SCOTS ON THE ROCKS

The Roon Radio function took me from Khruangbin/Touré to *Where I'm Meant To Be* [Partisan Records PTKF3020-2; 48kHz/24-bit] from the UK's Ezra Collective. The track 'Welcome To My World' got off to a rousing start, with some fine trumpet playing, which the MaiA DS3 launched into the room with gusto. Yet while the organically portrayed brass grabbed my attention, it was the carefully defined funk bass guitar that illustrated this device's audiophile prowess.

The DS3 is well suited to less subtle work too. Glasgow's noise-merchants, Mogwai, generally play live at volume levels that induce cracks in concrete, a sensation that 'Like Herod' on the re-release of the landmark *Mogwai Young Team* album [Chemikal Underground CHEM-262; 48kHz/24-bit] lets you experience at home. 'Play very quietly, shift to very loud' is the band's

KEEPING IT COMPACT

Pro-Ject's original MaiA, or 'My audiophile integrated Amplifier' [*HFN* Nov '14], was the brand's first 'all-in-one' solution, incorporating MM phono, three line, three S/PDIF digital, USB-B and BT inputs into a very slim 206x36x165mm (whd) case. A small Class D module from Japan's Flying Mole, and outboard wall wart, ensured the amp (priced £399 for 2x25W/8ohm) was cool-running despite being super compact. Rated at 2x40W/8ohm, the £699 MaiA DS [*HFN* Mar '16] was an upgraded version of the original MaiA and the first to be squeezed into the squarer form factor of Pro-Ject's burgeoning 'Box' range of mini separates. The company's Box Control app, for both Android and iOS, was introduced at the same time, connecting to the MaiA DS via Bluetooth.

The MaiA DS still used Class D modules from Flying Mole but, fast forward to 2023, and the latest MaiA DS3 is rated at twice the power (2x80W/8ohm) courtesy of its beefier Class D modules and more substantial 36V outboard PSU brick [pictured]. The MaiA DS3 is assembled to a very high standard by Pro-Ject's 'partner' factory – Canor spol s.r.l in Slovakia [*HFN* Nov '22] – but its compact footprint belies the growing size and weight of that PSU. PM

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D E S I G N E D & H A N D M A D E I N S C O T L A N D

ABOVE: MM/MC phono and three line ins, plus a sub, fixed and variable pre outs are offered on RCAs alongside USB-B (192kHz/24-bit; DSD256), BT antenna and coaxial plus two optical S/PDIF (192kHz/24-bit) digital ins. Power connects via a 4-pin DIN while speaker outs are on insulated 4mm sockets (now better placed than before)

party trick, but one the MaiA DS3 takes in its stride. Big dynamics really are no issue for this amplifier, although high volumes did expose a hint of higher midrange roughness on some tracks. Switching over to the Canton Reference 7Ks confirmed an ability to drive big set-pieces, the MaiA DS3 satisfactorily blasting the 16-minute-long 'Mogwai Fear Satan' into the room, while not neglecting the finer detail in quieter parts.

PIZZA THE ACTION

Considering Pro-Ject is a prime mover in the vinyl business, you'd expect this amp's phono input to make a reasonable fist of things. And it did, although I still found discs played on its X2 B deck with an Ortofon Quintet Red MC cartridge sounded more dynamic and possessed a quieter background when using a separate Phono Box S3 [*HFN* Sep '23]. The MaiA DS3 was more convincing with MM pick-ups.

Asking a traditionalist audiophile to stream via Bluetooth is not dissimilar to ordering a pineapple topping for your pizza while on holiday in Italy. As mentioned, Pro-Ject has included a very decent implementation of Bluetooth, with support for the aptX and aptX HD codecs, but critical listeners will doubtless appreciate the MaiA DS3's numerous other *physical* inputs to connect music sources. Nevertheless, sound quality via Bluetooth from a Samsung Galaxy S23 Ultra was surprisingly good, although this remains a lossy process at least until aptX Lossless arrives later in 2023. And that new codec will also require new gear...

Listening to *Streets Of Minarets* from Dhafer Youssef [Back Beat Edition E8720766721613; 96kHz/24-bit] felt far less of a compromise than expected – showing that one Bluetooth implementation can differ greatly from another. There was very little of the muddied, compressed character I've come to expect from BT streaming on various wireless speaker platforms. The MaiA DS3 performed well, the astounding high-pitched voice of Youssef presented with clarity, and resounding without a trace of harshness on 'Flying Dervish Intro'.

It's all rather excellent, only slightly lacking in spaciousness compared to 'hard-wired' streaming via the USB-B port. This is fitting for an amp that wants to appeal to a younger, smartphone-centric music lover, while also opening the door to more audiophile excitement.

LEFT: For the MaiA DS3, Pro-Ject's universal system remote control accesses on/off, input selection and motorised volume

HI-FI NEWS VERDICT

Traditional audiophiles might be tempted to discount Pro-Ject electronics, if only because the brand prioritises a compact build. But beefier Class D amplification and smart engineering has elevated the versatile MaiA DS concept into a third-generation 'box' that's plays with authority and just enough finesse. Treating even Bluetooth streaming with respect, this is Pro-Ject's vision of 'hi-fi for the masses'.

Sound Quality: 84%

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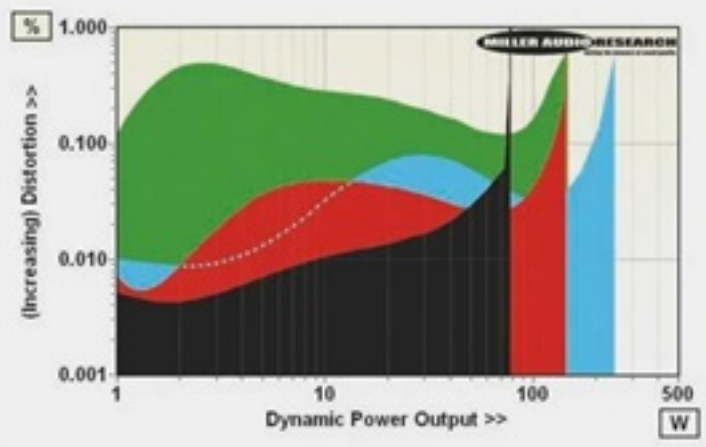
LAB REPORT

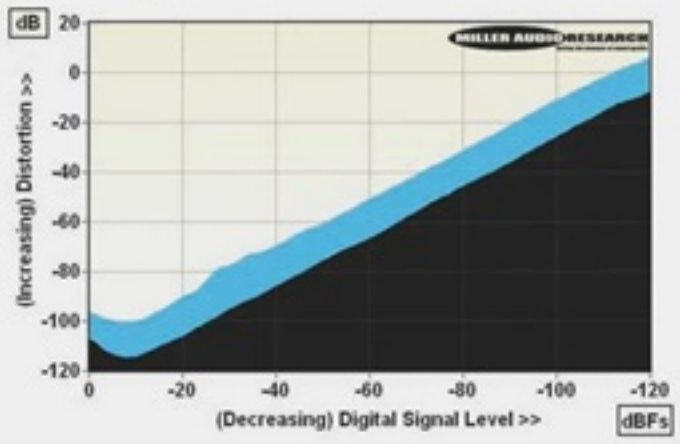
PRO-JECT MAIA DS3

This latest MaiA amp is also the beefiest of the series, meeting its rated spec. at 2x79W/8ohm and 2x145W/4ohm and holding enough in reserve to support 250W and 146W into 2 and 1ohm, respectively, under dynamic conditions [see Graph 1]. With these 'traditional' Class D implementations, both the 'continuous' and dynamic outputs are typically identical while the treble response is sensitive to the attached speaker load. For example, into 8ohm the response lifts to +0.6dB/20kHz and +2.4dB/43kHz, while into 4ohm it falls to –0.7dB/20kHz and into 2ohm to –3.3dB/20kHz. So, if the MaiA DS3 is paired with a speaker that has a rising HF impedance, it will sound brighter. Distortion, too, increases with frequency from 0.012%/1kHz to 0.65%/20kHz (re. 10W/8ohm), but the amp still has a good 86.7dB A-wtd S/N ratio (re. 0dBW).

Pro-Ject's implementation of the PCM1795 DAC is first-class, offering a 1.32V (fixed line) output from a 0dBFs digital input and with a wide 105dB A-wtd S/N ratio. Distortion climbs with frequency above the midband, from 0.00025-0.002% (1kHz-20kHz/0dBFs) and also increases linearly with decreasing digital level [see Graph 2]. Low-level resolution is good to within ±0.2dB over a 100dB range and jitter is fabulously low at ~12psec with 48kHz/24-bit data. A fairly standard, medium-tap linear FIR filter is employed with the PCM1795 DAC, combining a modest 65dB stopband rejection with a very flat response that reaches down below 5Hz up to 20kHz/+0.12dB (48kHz files), rolling off thereafter to 45kHz/–2.6dB (96kHz files) and 90kHz/–13.7dB (192kHz media). In practice, of course, it is the load-dependent response of the Class D amp modules that will define the 'tone' of this latest MaiA amplifier. **PM**



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 12.1A



ABOVE: Distortion vs. 24-bit digital signal level over a 120dB range, fixed line out (1kHz, black; 20kHz, blue)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	79W / 145W
Dynamic power (<1% THD, 8/4/2/1ohm)	79W / 145W / 250W / 146W
Output imp. (20Hz–20kHz/45kHz)	0.082-1.2ohm / 9.7ohm
Freq. resp. (20Hz–20kHz/100kHz)	0.1dB to +0.6dB/–6.6dB
Digital jitter (48kHz / 96kHz)	12psec / 35psec
A-wtd S/N ratio (DAC/Amp)	105.1dB (0dBFs) / 86.7dB (0dBW)
Distortion (DAC, 0dBFs/Amp, 10W)	0.00025-0.002% / 0.012-0.65%
Power consumption (Idle/Rated o/p)	11W / 179W (1W standby)
Dimensions (WHD) / **Weight**	206x71x252mm / 1.9kg

Brahms
Piano Concerto No 1

Brahms the beardless, Brahms the keyboard revolutionary: the D minor Concerto sorts out pianistic sheep from goats. **Peter Quantrill** surveys almost a century of recordings

Picture yourself sitting in the audience at the earliest performances of the D minor Concerto, in January 1859, the 25-year-old composer at the keyboard. Imagine that the contemporary piano concerto meant Liszt and Litolff: glitter and fluff, brevity and showmanship. How would you take to the epic first movement, itself as long as several whole Mozart concertos? No wonder that it was hissed in Leipzig – Brahms wrote off the event as a brilliant and decisive failure.

IT TAKES TWO

Much of the angst surrounding the piece derives from its tortuous gestation. Brahms first met Robert and Clara Schumann as an ambitious 20-year-old. The couple took both to him and to the works he brought them. Brahms proceeded to compose a sonata for two pianos, and then orchestrated the first movement as a toe in the water towards writing a First Symphony. He wrote to Clara of a dream in which he had used his proto-symphony for a piano concerto instead.

HMV caught Wilhelm Backhaus in his prime when they made the first recording of the First Concerto, in

Classic Curzon: the English pianist made three recordings of the First

PHOTO: DECCA

1932. Sir Adrian Boult lays down the gauntlet in a mighty opening tutti, conducting the BBC SO, but the forward movement and flexibility of the movement as a whole (over in 19 minutes) are a world away from the solemn weight of many postwar recordings. As a boy, Backhaus had met the composer in 1895, at a Leipzig concert when he conducted Eugen d'Albert in both piano concertos in a single evening, thereby setting an unfortunate precedent for a musical circus act that has been perpetrated in our own time by Daniel Barenboim and others.

The example of Backhaus, meanwhile, is one followed by many fine young pianists of the next generation, balancing dynamism and nobility in the first movement, never becoming bogged down in the lyrical episodes, drawing on all the latent Beethoven and Bach which Brahms encoded in the profound slow movement, and then giving a Mozartian spring to the finale's intricate counterpoint.

No less than hungry keyboard lionism, however, the First Piano Concerto demands a symbiotic relationship between soloist and conductor in order to realise the symphonic dimensions and dialogue of a work with Beethoven's 'Emperor' as its only precedent. As well as being played on the quicker side, it's probably no coincidence that most of my favourite recordings [see Essential Recordings, p79] were made in partnership with conductors at home in modernist as much as Romantic repertoire. The most staggering performance I ever saw live was given by Maurizio Pollini and the LSO, working with the unlikely figure of Péter Eötvös, who apparently later said the concerto was harder to conduct than the complex piece of Lachenmann he had led in the first half!

CAUGHT ON THE WING

Live or as-live does seem to be the condition that draws out the best of most pianists in the piece. There was surely no audience present when the 25-year-old Julius Katchen recorded it for broadcast in 1951 with the SWR Baden-Baden SO and Ernest Bour (now on Urania), but there is no shortage of Hungarian fire (or wrong notes) to the outer movements, and mutual, inward communion in the Adagio. Like Backhaus, Katchen presses on ardently in the first movement's lyrical second theme where many later pianists sit and linger.

Bour's predecessor at Baden-Baden was Hans Rosbaud, another under-rated, modernist-inclined maestro, whose suavely Classical approach lends crisply disciplined support to Walter Gieseking and (especially) Rudolf Firkušný, in more 1950s German radio recordings, reissued on the SWR Classic label.

Youth is hardly a prerequisite, but there is something to be said

> 'I can hear the mono-phobes rustling in the stalls'

Old wine in new bottles: a grandly spacious approach from Zimerman and Rattle on DG

PHOTO: MAT HENNEK, DG

for taking the piece head-on with the fearlessness of inexperience: see William Kapell and Dino Ciani in 'Essential Recordings' below, both pianists (like Katchen) whose flame now seems to burn the brighter for being extinguished before its time.

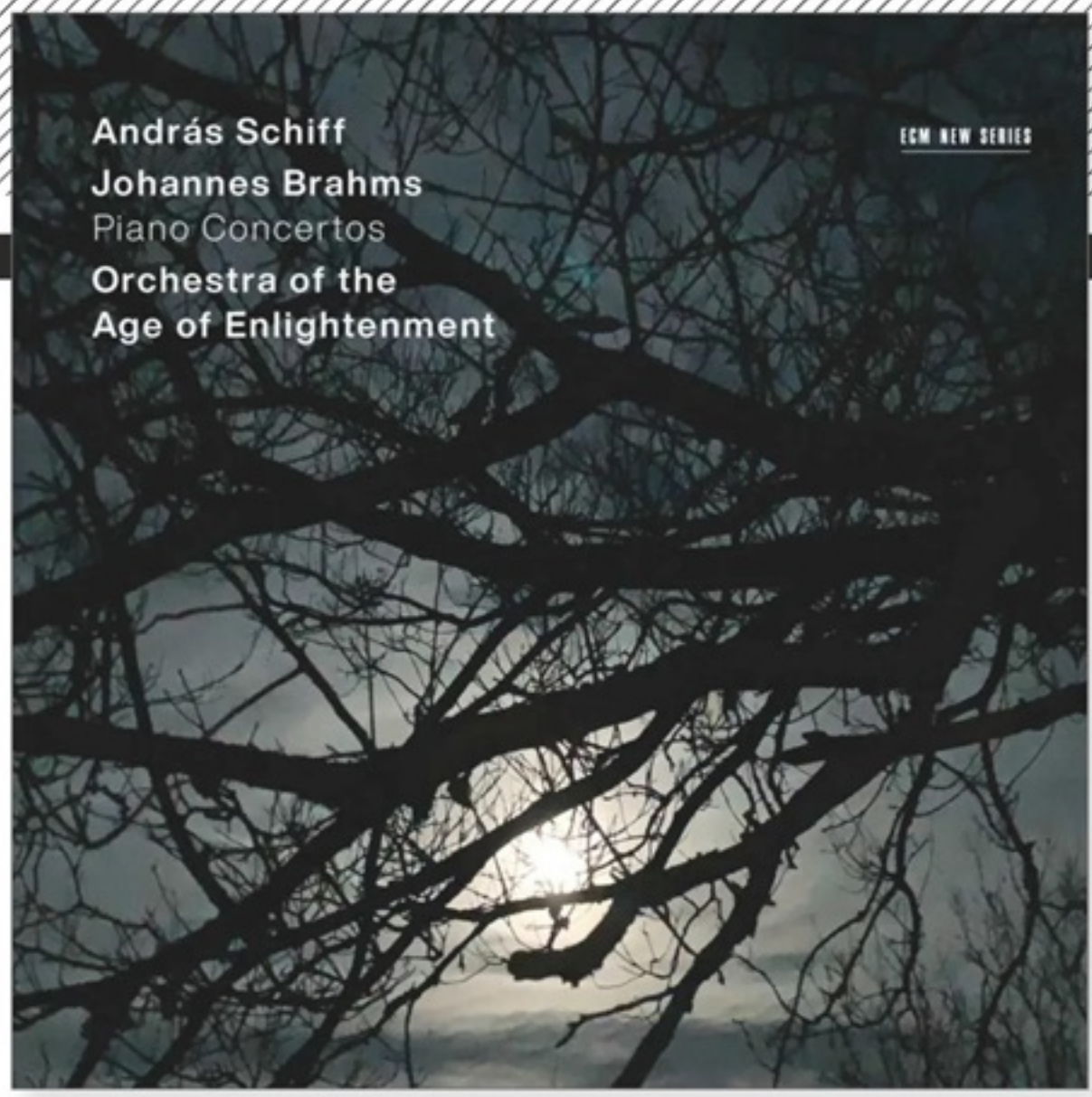
While there are touches of self-conscious grandeur to Bruno-Leonardo Gelber's recordings from the '60s as a 20-something tyro, his thoughts are fresher and his fingers lighter than his fellow Argentine Daniel Barenboim, who has recorded the piece more than anyone else in the modern era. Counting live performances, however, the Chilean Claudio Arrau tops the list with eight (at least) accounts on record, all of them centring on a slow movement of fathoms-deep touch and yet dappled shades of autumnal colours.

First thoughts on the piece are often best. Clifford Curzon's later recordings with Jorda and Szell are no improvement on the rhapsodic flow of his 1953 account (also on

Fire-breathing intensity: William Kapell, the tragically short-lived US virtuoso

Decca, now Eloquence) with van Beinum and the Concertgebouw, so well matched tonally and boasting a first horn as eloquent as the pianist. I confess myself allergic to Szell's conducting, whether accompanying Fleisher, Serkin or anyone except Schnabel back in 1938 (Naxos), when he had not yet become so unyielding of pulse and so domineering as a personality.

I can hear the mono-phobes rustling in the stalls. What about a version in fabulous stereo worthy of my kit? Gilels and Jochum on DG once held sway as a benchmark: aristocratic, eloquent but too drawn out. Berman with Leinsdorf on Sony: technique at the service of the pianism rather than the piece, though he does buck the



Authentic keyboard lionism: a superbly engineered ECM studio set with all the spontaneity of a live version

trend (in 1980) for performances to drag in search of profundity. Pollini's remakes with Abbado and Thielemann again do not add to the fire-and-ice of his first version with Böhm ('a kind of miracle', he recalled of their partnership).

SECOND THOUGHTS

However, several recent 'second thoughts' from notable Brahmsian pianists have brought new insights to the piece. Stephen Hough's Virgin Classics recording had an appealing, Mendelssohnian freshness of phrasing, but the Hyperion remake is much better integrated with the Salzburg Mozarteum orchestra. Krystian Zimerman's first version on DG is dominated by Bernstein on the podium; he finds a partnership of symphonic equals with Rattle, yet some will find the level of detail, sonic and interpretative, distracting.

Best of all, in terms of our own time, there is Sir András Schiff on a Blüthner piano from 1859, the year of the concerto's premiere. The generically Romantic flourishes of accompaniment from his early Decca version with Solti are replaced by much subtler gradations of portamento and vibrato, call and response, from his long partnership with the Orchestra of the Age of Enlightenment, and their Abbey Road studio version retains the thrilling spontaneity of the London concert I saw, in which Brahms the young lion roared once more.

ESSENTIAL RECORDINGS

Kapell; NYPO/Mitropoulos
Music & Arts MACD0990
A crumbly but electric radio broadcast from 1953, a reading of alarming extremes and a true meeting of minds.

Ciani; Hungarian RTVSO/Abbado
Stradivarius STR10014
Another lo-fi, high-intensity treasure from the archives, and one in which the two young Italians spur each other on.

Arrau; USSR RSO/Rozhdestvensky
Doremi DHR7890-91 (2CDs)
Cavernous mono recording, more ropey accompaniment but detailed conducting; and Claudio Arrau at his most towering.

Brendel; BPO/Abbado
Decca/Philips 4200712
Alfred Brendel's reading subtly gathers unstoppable momentum; Abbado and the Berliners offer sinewy support.

Zimerman; LSO/Rattle
DG 4775413 (CD), 4796867 (LP)
Old-fashioned in its spacious approach, yet entirely modern in the transparency of playing and engineering.

OAE/Schiff
ECM 4855770 (2CDs)
Authentic as in true to the spirit as well as the sound of the score, flowing like a molten river in the outer movements.

CSN&Y
Déjà Vu

Adding Neil Young to CSN brought supergroup status and a multi-selling album, but the band were not happy, says **Steve Sutherland**, as he hears the 180g reissue

STEVE SUTHERLAND

Steve edited NME from 1992-2000, the Britpop years, launching NME.com and reviving the NME Awards. Previously he was Assistant Editor on Melody Maker. Among his many adventures he has been physically threatened by Axl Rose, hung out awhile with Jerry Garcia and had a drink or two with Keith Richards...

This is Graham Nash talking about David Crosby just over a year ago: 'Who are you? Are you a decent person? Or are you an a**hole? It would be very easy for me to get into why I don't want to do any more Crosby, Stills and Nash or Crosby, Stills, Nash & Young work. There are too many reasons. It's too complicated. It's too painful. I'm just telling you, it's over. It's an incredible shame because when we're good, we make very good music that touches people's hearts and changes their minds. But he tore the heart out of CSN and CSN&Y because he's not a really great person'.

This is Graham Nash's eulogy written a couple of months ago on the news of David Crosby's death: 'It is with a deep and profound sadness that I learned that my friend David Crosby has passed. David was fearless in life and in music. He leaves behind a tremendous void as far as sheer personality and talent in this world. He spoke his mind, his heart, and his passion through his beautiful music and leaves an incredible legacy'.

FRIENDS AND ENEMIES

This was David Crosby on Graham Nash a few months before Crosby died: 'I don't expect to be friends with Graham at any point. He gave the impression of looking after me, but apparently that was all just trying to keep the money coming. I'm not going to talk to him. I don't want to talk to him. I'm not happy with him at all. To me, that's all ancient history, man... He changed from the guy I thought was my best friend to being a guy that is definitely my enemy'.

> 'CSN&Y was hailed as the first US supergroup'

As if this wasn't enough, here's David Crosby on Neil Young about a year ago: 'Neil hates my guts because I said bad stuff about his girlfriend [the actor Daryl Hannah]'. Crosby had called Hannah 'a poisonous predator' in an online rant. The Cros wasn't done though: 'Neil Young is probably the most self-centred, self-obsessed, selfish person I know. He only thinks about Neil, period. That's the only person he'll consider. Ever!'.

Young, understandably, cut off all communication with Crosby but here he is on learning of his death: 'David is gone, but his music lives on. The soul of CSN&Y, David's voice and energy were at the heart of our band. His great songs stood for what we believed in and it was always fun and exciting when we got to play together... David was the catalyst of many things. Love you man...!'.

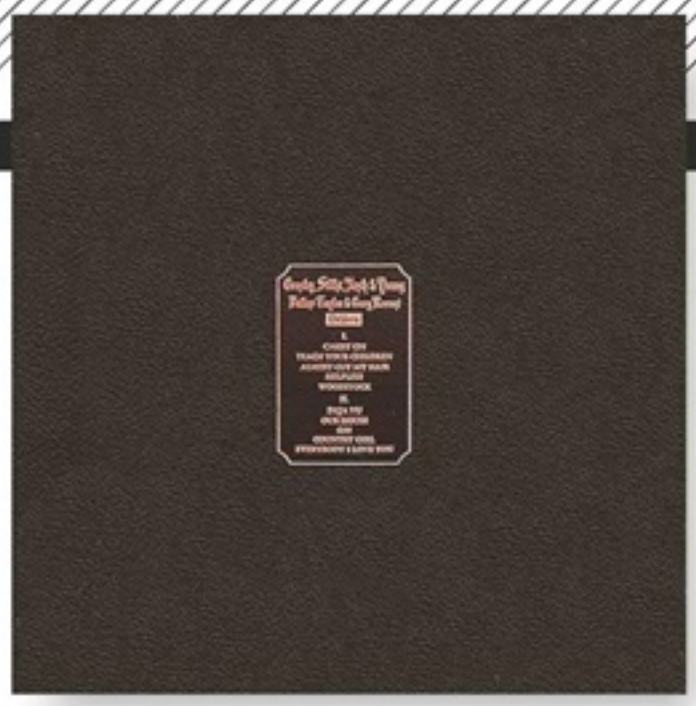
You can't help but laugh. I know you're not supposed to speak ill of the dead but, honestly, this lot are ridiculous. Forgiveness? Hypocrisy? Probably both.

SOAP STARS

Where's Stephen Stills in all this? Well, on Crosby's passing he said: 'He was without question a giant of a musician, and his harmonic sensibilities were nothing short of genius. The glue that held us together as our vocals soared, like Icarus, towards the sun'. This is the same Stills who has been on-and-off so bonkers down the years that Young has pulled out of several tours and recording sessions with him.

The seeds of this unseemly soap opera were sewn way back in 1969, at the recording sessions which resulted in the album we're here to examine, *Déjà Vu*. It was to be the first CSN&Y LP, following on from CSN's debut, which had been a revelatory masterpiece of ethereal harmony. The

Crosby, Stills, Nash & Young backstage in 1974 at Rich Stadium in Buffalo, label of original LP (inset), Crosby and Nash in 1975



Priced £34.99, the 180g reissue of Crosby, Stills, Nash & Young's *Déjà Vu* is available at *www.thesoundofvinyl.com*

addition of Young, at the suggestion of the band's label boss at Atlantic, was to assuage Stills' desire to add a rocking element to their folksy debut, even though Young and Stills had ego-wrestled through the brief existence of their first group together, Buffalo Springfield, until Young had walked away. CSN&Y was hailed as the first American supergroup but as it turned out it was neither what you might call super nor was it really a group.

ON THE TAKE

The sessions at Wally Heider's Studio in San Francisco [see p88] were somewhere between fraught and unpleasant. Stills was on a perfectionist trip and, as the principal musician, insisted on take after take and endlessly cleaning things up. His later estimation was that the album had taken over 800 hours to record. Crosby, distraught by the recent death of his girlfriend in a car accident, was often in tears, self-medicating through the pain. Nash had been dumped by Joni Mitchell, and the best thing you could find to say about his famously saccharine nursery rhyme contributions to the album in the form of 'Teach Your Children' and 'Our House' were that they were exactly the sort of privileged drippy hippy drivel which drove the bored and disenfranchised youth to eventually conjure up punk.

Young, Stills, Crosby and Nash pose for a promo shot in the mid 1990s

Young refused to play on both those tracks, also deciding pretty early on that he wanted to participate in name only and so recorded his tracks separately in Los Angeles, with no input from the others until he brought them in to add backing vocals. 'Country Girl' was actually two old Buffalo Springfield songs cobbled together with a new chorus. In other words, Young's effort on behalf of CSN&Y was minimal.

WESTERN ELECTRIC

Stills later admitted that making the album was 'like pulling teeth', but despite all the nonsense there were a few nuggets. Stills' 'Carry On' was the album's most spontaneous piece, put to bed within eight hours, and it shows. There's a spirited life to it which makes the listener yearn for what else could have been achieved had circumstances been kinder. 'Everybody I Love' comes close to that, Stills injecting a heady whiff of Latin into the mix.

Not too bad are '4+20', a Stills blues, and Crosby's title track which mucks about in the same sublime territory as 'Guinnevere' from the *CSN* LP. His 'Almost Cut My Hair' is a daft paranoid ditty about living in fear of the Man, the lyrics richly deserving of ridicule but discovering some salvation in the rough and agonised vocal.

Best of this bunch is their take on Joni Mitchell's 'Woodstock', the wafty original granted some oomph by Stills' electric instincts as the band, for once, all played together. It was a hit when released as a single, as were the two Nash contributions, and when the album was released in March 1970, wrapped in a faux leather gatefold with the participants captured in sepia pretending to be Wild West outlaws, it too was already a hit. Pre-orders in anticipation of another *CSN* topped $2million.

RE-RELEASE VERDICT

Issued in January by Rhino Records on 180g black vinyl [0603497842025], this single-platter release follows the 2021 '50th Anniversary' deluxe boxset of CSN&Y's *Déjà Vu*, and features the same remastered audio and original cover art. Want more than the ten tracks here? The boxset [R2 625238] adds demos, alternate versions and outtakes across four CDs and one LP, plus a hardback book with rare photographs annotated by filmmaker Cameron Crowe. *HFN*

Sound Quality: 90%

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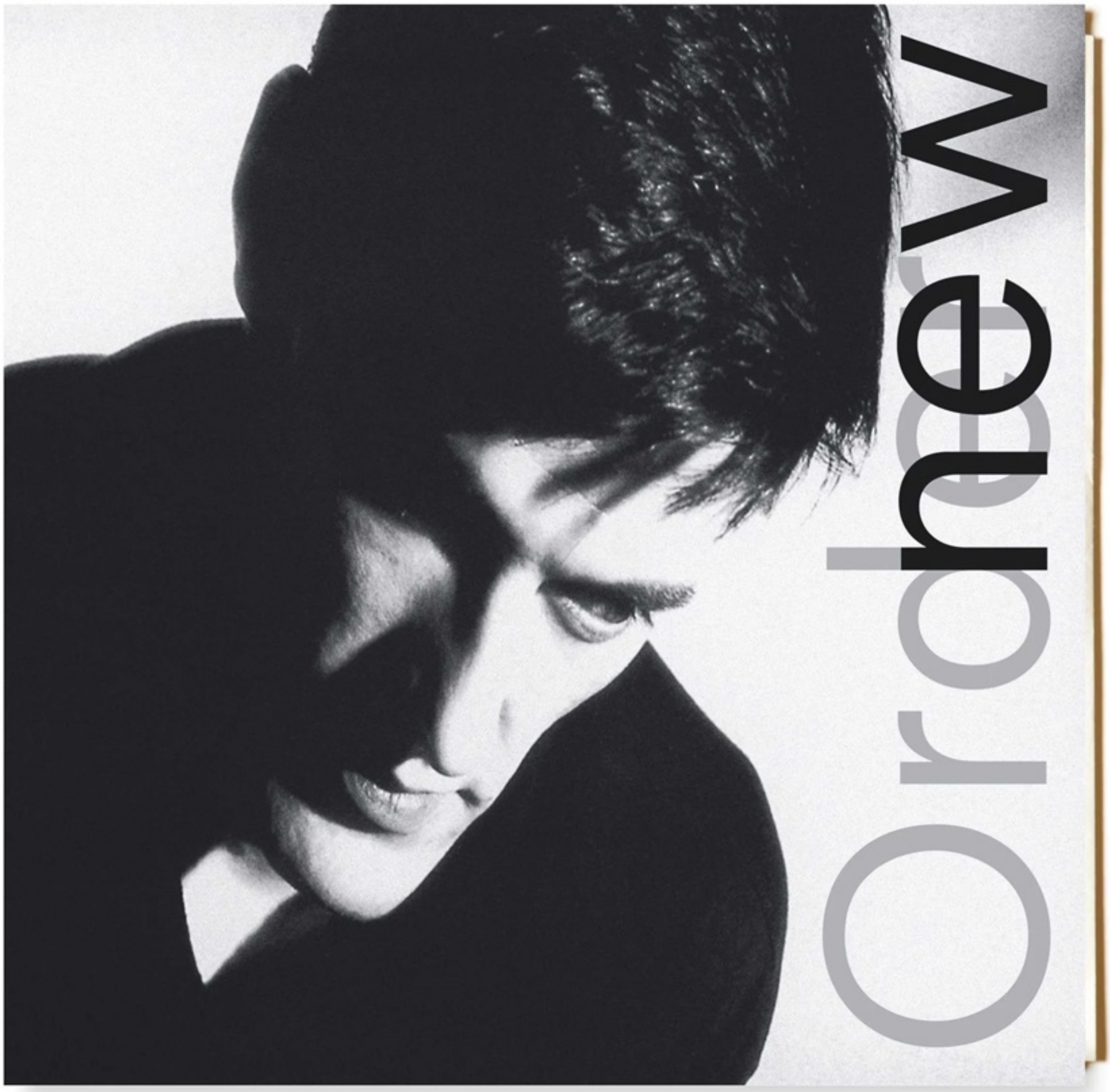

New Order *Low-life*

This 1985 album from the Manchester-based outfit proved they were more than just a singles machine, and cemented both their fusion of rock and electronica and their unconventional approach – right down to putting the drummer on the front cover...
Words: **Johnny Sharp**

It's hardly surprising that a band formed from the ashes of tragedy should take a while to truly find their own musical identity. But after singer Ian Curtis's suicide brought Joy Division to a premature end in May 1980, New Order had shown intermittent moments of brilliance on a string of singles, but not across a whole album.

Until *Low-life*. The band's third album, released on the 13th of May 1985, is still regarded as a career high watermark – not just by fans and critics, but the band themselves. 'Even if we didn't realise it at the time, we were somewhere near the top of our game', wrote drummer Stephen Morris in his 2020 memoir *Fast Forward*. He also ended up as the LP's cover star (more of which later).

SINGULAR SOUND

The band's previous album, *Power, Corruption & Lies*, had helped further move them away from the shadow of Joy Division and a string of great cuts such as 'Temptation' (1982) and 'Confusion' (1983) had firmed up the blueprint for a pioneering electronically focused approach to post-punk rock.

These non-album singles came either side of a deathless dancefloor perennial in the shape of 'Blue Monday' (1983), which would slowly but surely become the best-selling UK 12in of all time, not to mention an almost legally bound inclusion on every indie disco playlist until well into the next century.

Side 1 of the original LP on the Factory label

Ian Curtis (second from left) with Joy Division in 1979

New Order in 1985 (l-r) Stephen Morris, Gillian Gilbert, Bernard Sumner and Peter Hook

Quest Records press shot of the band for the US market

The group pictured in 1986

New Order were still regarded as a band that released singles, though, and having embraced the '80s trend for extended remixes and pop songs designed for more than just a three-minute blast on the radio, they arguably had no need to prove themselves within the parameters of a long player.

Up until this point they hadn't released any singles taken from albums ('Blue Monday' was only shoehorned into later editions of *PC&L*), reflecting their belief in keeping the two art forms relatively separate. Even when 'The Perfect Kiss' was released as a single on the same day as *Low-life* in 1985, the band justified the inclusion, as Stephen Morris put it, because the edited version of 'The Perfect Kiss' on the album was 'really just a trailer for the actual thing, the full-length feature of the 12in version'. Another song, 'Sub-culture', would also be released as a single from the LP, if in a comprehensively remixed form.

> 'New Order were still regarded as a singles band'

A TALE TO TELL

The lead track of *Low-life* didn't make it onto 7in or 12in in its own right but the impact of 'Love Vigilantes' has made it one of the band's best-loved pieces of music. It's also one of their least characteristic, being a 'story song'.

The seed of the idea was planted back in 1979, in the days of Joy Division, when the group were travelling on the road with the crew of punk rock band Buzzcocks, who they were supporting on tour.

CORN SYRUP

'One of them was really into country music,' lyricist Bernard Sumner explained in his autobiography *Chapter And Verse – New Order, Joy Division And Me*. 'He'd play it in the van the whole time. I remember thinking that this music was s**t, but noticed how the songs all had a narrative, usually a sob story. Corny as hell, but so corny it was good. Years later, I remembered that and wrote a song that had a storyline, and that was "Love Vigilantes".'

The tale is told by a narrator who has just returned home from a war 'in the land of the sun' to find his wife crying with a telegram in hand informing her that he was 'a brave, brave man but that I was dead'. 'Was he dead?' Sumner asked of the protagonist later. 'I'm not saying... that's the question the song leaves you with – is he a ghost?'. According to Stephen Morris, the song was ⟳

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PRODUCTION NOTES

The band recorded and mixed the album alongside engineer Mike Johnson at Britannia Row Studios – originally set up by Pink Floyd – and Jam Studios in North London between October and December 1984. Their willingness to grapple with new technology was well in evidence: is that an Emulator sample of a frog on 'The Perfect Kiss'? Why, yes it is. Meanwhile, Gillian Gilbert had upgraded the Quadra and Prophet-5 synths she'd used previously to a Voyetra-8, and this would form the cornerstone of the band's sound into the '90s.

Old-school approaches were still employed, however. Stephen Morris claims he would resort to thumping the Emulator they were using just to get it working. 'Much like Basil Fawlty, I did like violently thrashing it with a lump hammer or piece of scaffolding', he recalled in *Fast Forward*. 'Sometimes it would refuse to load its disks and frequently refuse to start up at all. I discovered this was remedied by brute force.'

Word spread to other acts who were suffering their own issues with the Emulator, and according to Peter Hook, Erasure contacted them to ask: 'We've heard you get the Emulator 1 to work by hitting it with a hammer. Whereabouts did you hit it exactly?'.

The group were on the clock during the recording, being under

heavy pressure to finish the album ('The Perfect Kiss' being the final song to be completed, having gone through innumerable incarnations) before driving home to Manchester and then flying off to begin a tour of the Far East and Australasia.

'The others fell asleep and me and Mike Johnson stayed up for 49½ hours...', Peter Hook later claimed. There are surely few better adverts for the creative benefits of insomnia.

'partly inspired' by Kenny Rogers And The First Edition's 'Ruby, Don't Take Your Love To Town', and that 'Bernard's lyrics and guitar and Hooky's bass make it fantastic'.

CULTURE WARS

Yet Morris's own urgent, driving rhythm is a key factor too, seeming to mix the metronomic pulse of dance music with the gutsy snare-cracking style of rock. Meanwhile, according to the sleeve notes by Ian Harrison for the 2008 CD remaster, the melodica motif was allegedly inspired by 1970 one-hit wonder 'Groovin With Mr Bloe'. So there.

> 'Dance music mixed with the snare-cracking style of rock'

Leaning towards the electronic side of the dance-rock axis they so skilfully straddled on this album, 'The Perfect Kiss' would be the first New Order single to be taken from an album, and it also had a tale behind it, albeit not as conventionally told. The penultimate line 'My friend took his final breath' hints at the inspiration for the lyrics which, according to Peter Hook, was 'the true story of an acquaintance who was shot and killed in Moss Side'.

If that hints at the murky side of the nightlife some of the band were witnessing at this point – they were, of course, founders of Manchester's Hacienda nightclub, which proved a victim of its own success when criminal gangs began battling for control of the drug trade there – then 'This Time Of Night' and 'Sub-culture' reflected a different aspect of the same, particularly Sumner and Hook's new-found passion for fetish clubs.

All manner of eye-popping costumes and behaviour were encountered there by the pair and their bandmates, and after the former track references 'pleasure' and 'pain', the latter insists, 'In the end you will submit – it's got to hurt you a little bit'. Peter Hook later admitted: 'It suffered from five-o'clock-in-the-morning lyrics where we couldn't think of anything else for the chorus.'

Then again, New Order were never famed for Pulitzer Prize-worthy words; more so the atmospheres the band could create with music. This reputation was further enhanced by the breathtaking instrumental 'Elegia', edited on the album to around five minutes from a 17-minute original, since made available on expanded reissues of the album [see p87]. This piece had been created for ⟳

The band while on tour in the US in the mid-'80s (l-r) Hook, Morris, Gilbert and Sumner

Bernard Sumner on stage with New Order at the Sónar Music Festival in Barcelona in 2016

Original Pink Floyd mixing desk at Britannia Row, now a training studio

In 1991 Stephen Morris and Gillian Gilbert formed New Order side project The Other Two

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WARREN JACKSON/SONIC PR

Still regularly touring, New Order announced four shows in the US for March 2023 at venues throughout Texas and one in New Orleans

a movie planned by *i-D* magazine, which never saw the light of day. Morris says it was inspired by Ennio Morricone's western movie soundtracks, and in its original incarnation the 24-hour recording session at Wembley's CTS studios saw Sumner invite the engineer's nephews, Ben and Justin, who'd dropped in after attending school, to repeatedly say their names into the microphone, resulting in the original working title for the track being 'Ben And Justin'. Sadly their contributions didn't make the final cut.

The prominence of Peter Hook's snaking basslines allied to jagged guitar (check out the sheet-metal scrape of the anti-solo on 'Love Vigilantes'), elegant synthscapes, and Bernard Sumner's beguilingly plaintive vocals were forming a template for the New Order sound – and the latter's voice, although it sometimes maintained a tenuous relationship to the intended tune, was all the more charismatic for being a touch amateurish.

ROUGH CUTS

Hook has talked fondly of the 'unintentional strained quality' of Sumner's vocals 'as he tried to fit into the track', which he feels was later slightly spoilt when producer John Robie, who would produce several subsequent singles and remixes, pointed out that Sumner was often singing in a key his voice struggled with. The bassist felt that 'correcting' this aspect of the band's sound set them on a slippery slope towards writing more conventionally, and moving away from the DIY ethos of the punk scene that spawned them.

On tracks such as 'Face Up' you can see (hear) his point – Sumner strains to hit the upper register notes and it adds a faint sense of desperation to his delivery as he relates how he 'cannot bear the thought of you'.

COVER UP

Perhaps partly due to such unvarnished charm, the band remains proud of the finished product. The packaging was pretty special too, and unconventional as ever, with Factory art supremo Peter Saville deciding there should be photographs of New Order's members on the sleeve for the first time, as part of his 'demystification' process. But they did it back to front compared to the usual band hierarchy, with drummer Stephen Morris gracing the cover before polaroid portraits of Gillian Gilbert (guitar/keyboards), Peter Hook and, bringing up the rear, frontman Bernard Sumner featured inside. The finishing touch was to sheath the whole album with tracing paper.

> 'The album was a template for the New Order sound'

In his 2016 memoir *Substance*, Hook singles out *Low-life* as his favourite New Order album. 'The combination of the sequencers and the rock side was perfectly balanced. We were very much together.' And Morris has echoed those sentiments, saying this third album was when 'we grew up and became a proper band'.

Thirty-seven years on, New Order's affirmatory *Low-life* continues to mature more gracefully than perhaps Hook, Morris *et al* might ever have imagined.

Alternate Format Discography

ORIGINAL VINYL (1985)
The first incarnation of the album [Fact 100] came in a transparent 'onion skin' tracing-paper sleeve, and the fact you had to tear it to access the LP inside meant many hardcore fans bought two copies, one to leave sealed and another to open up and play – how very 21st century of them...

FIRST CD (1985)
With *Low-life* arriving just as the shiny, silver, and allegedly indestructible new digital format was coming of age, it would have been remiss of Factory not to take the opportunity to release the album on compact disc – although given the many commercially self-sabotaging moves the group and their record label made at other times, it wouldn't have been particularly surprising if they

had not. As it was, the first CD version [Facd 100] hit stores in October 1985, with an inlay staying loyal to the tracing-paper style. Some contained an inner cardboard sleeve marked 'car carry case' in common with other early Factory CD releases.

EXPANDED SET (2008)
Given the acclaimed remixes and other music that emerged

in New Order's name around the same time as *Low-life*, it made sense for it to be hoovered up and thrown into a bundle along with a punchy remastering. This being 2008, before the vinyl revival went properly overground, it was only released on a pair of CDs [London 2564693700], but the digipak stays satisfyingly faithful to the original, along with added sleeve notes telling the story of the album's evolution.

AUDIOPHILE VINYL (2015)
There isn't much competition in terms of heavyweight vinyl reissues or remasters of the

album, but the 2015 re-press [London 2564-68879-8] offered in London Records' Vinyl Collector series on 180g disc does a fine job of addressing any dynamic shortcomings – the same LP is included in a new box set (see below).

BOX SET (2023)
Naturally, London Records Collector's Edition couldn't possibly be the end of the story when it came to reissuing New Order's classic third album. And nor, probably, will the 'Definitive Edition' prove to be any such thing, given the thirst of the music industry for new ways of selling the same, but ostensibly slightly different, products right back to us.

Nonetheless, the box set [Warner Music 0825646253012] released on January the 27th this year (2023) combines a 180g LP pressing with two CDs and two DVDs, plus a hardback book, and includes previously unreleased audio takes and rare live performances. If you're intrigued enough to own instrumental versions and early demos, and the cost-of-living-crisis isn't biting too hard (the set sells for £144), then by all means get stuck in.

PHOTO JIM MARSHAL

Hyde Street Studios

This facility in San Francisco has been home to bands as diverse as The Grateful Dead, Green Day and Santana. But first **Steve Sutherland** salutes the man behind the brand

During my late teens in the mid 1970s, whenever I browsed through the stock in a record shop, if I came upon an album produced at Wally Heider Studios, no matter who it was by, I was more than likely to buy it. Such was the quality guaranteed by the Wally Heider brand that the studio became a kind of shrine to me, a far-off holy grail that shone in my imagination as did that holiest of live venues, the Fillmore West.

Wally Heider – it wasn't just the sound of the records, though that was indisputably great. It was kind of *everything*. The name had a cool Western allure, like a member of Sam Peckinpah's *Wild Bunch* or something. And it was what the studio and the records it produced stood for – both an ethos and a soundtrack to an era. This was the place where recordings weren't just made, it's where they were *created*, where they *happened*.

The way local San Franciscan musicians gathered together in a community, playing on each other's tracks, making it up on the spot most of the time as they were largely too out-of-it to have anything too pre-planned, this was music that let its freak flag truly fly.

Hyde Street's Studio A in 2016 with its Neve 8038 console and (inset) Gerry Garcia, David Crosby, Phil Lesh and Neil Young jam in the live room of Studio A

Wally Heider regulars Jefferson Airplane and (right) their 1969 album *Volunteers*

ROAD TO MONTEREY

Accidents would happen – lucky accidents that were kept on rolling tape, adding to the feeling these were once-in-a-lifetime, never-to-be-repeated performances captured to our good fortune for posterity.

The Grateful Dead; Jefferson Airplane; Quicksilver Messenger Service; Crosby, Stills, Nash & Young; New Riders Of The Purple Sage... This was the Haight Ashbury crowd at

KEY RECORDING TIMELINE

1969
Creedence Clearwater Revival work on *Green River*, the title track and 'Bad Moon Rising' both hits

1970
Santana record *Abraxas* between April and May 1970. It becomes the band's first album to reach No 1

1971
The Doobie Brothers lay down their album *Toulouse Street*. It gives them the hit single 'Listen To The Music'

their freewheeling zenith, jamming, experimenting, reaching out to the cosmos, ever searching...

The studio's founder, Wally Heider, had started work in the industry as an engineer at Bill Putnam's United Western Recorders Studio in Hollywood in the early 1960s, after which he founded his own Wally Heider Recording at 1604 N. Cahuenga Boulevard where bands such as The Beach Boys waxed lyrical about the top-notch facilities.

In '67 Heider assisted in the live recording of the Monterey Pop Festival where he witnessed the up-and-coming artists based in the Bay area who, having started their careers having to travel to New York or LA to record, were lacking a suitable facility somewhere closer to home. Heider followed his instincts and, in the spring of 1969, opened Wally Heider Studios at 245 Hyde Street in San Francisco's downbeat Tenderloin district.

MCINTOSH AMPS

The building had previously been used by 20th Century Fox to house offices, screening rooms and storage. It's said Heider envisaged four studios on the premises – A and B on the ground floor and C and D upstairs, but Studio B was never finished and instead became a games room. Studio C's dimensions were similar to Heider's Studio 3 in Hollywood though its control room, instead of being at the end the space, was parallel to Studio C's long side. The walls were kept from being parallel with square gypsum devices that were used as midrange sound diffusers and absorbers.

The studios were equipped by Frank DeMedio, who designed the 24-channel mixing console and an eight-channel monitor and cue using Universal Audio (UA) console components, military-grade switches and level controls, and a simple audio path that used one preamp for everything in a channel. Monitor speakers were Altec 604-Es with McIntosh 275 tube power amps.

The first record released out of Studio C was Jefferson Airplane's *Volunteers* and the list of what followed over the next half a dozen years or so reads like a who's who of legendary West Coast recordings. Take a look at this small sample: Neil Young did his eponymous debut solo album there and followed it up with the Crazy Horse-assisted *Everybody Knows This Is Nowhere*, Crosby, Stills, Nash & Young cobbled together *Deja Vu* here [see p80], David Crosby recorded his wonderful *If I Could Only Remember My Name* (the peak of fellow artist participation which Crosby called 'cross pollination') while Graham Nash did his *Songs For Beginners*.

Eric Burdon on stage at the Audimax in Hamburg, Germany, in 1973

Studio A as it is today. The vintage Neve 8038 console has recently undergone extensive modification

Trade ad for Wally Heider Recording from 1975, after the business had been sold to Filmways

Pictured at Hyde Street in May 2021 (l-r) engineer Will Chason, David Crosby with his wife Jan, and science writer Steve Silberman

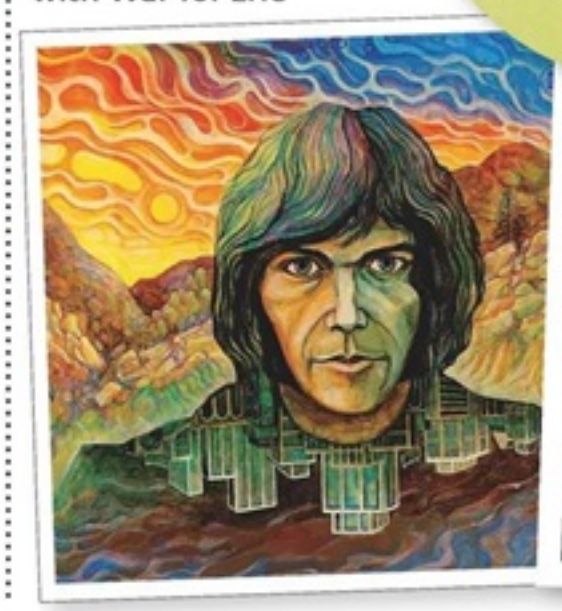
Cover and label of Neil Young's self-titled debut album and (right) Young in 1994

IT'S A RAP

Then, of course, there was Santana, who created their 1970 LP *Abraxas*, and Eric Burdon, who joined with War for *Eric Burdon Declares War* and *Black-Man's Burdon*. Both were recorded in one two-day session, Burdon high on LSD, conjuring up the famous one-take rap on 'Spill The Wine'.

'I didn't know he was tripping his mind out', engineer Stephen Barncard said later. 'But he had his rap together; there was not one fix, not one edit. That record basically mixed itself. And it was very educational to me about the importance of liveness, which is what that studio encouraged.'

Other Heider classics include The Grateful Dead's *American Beauty*, Jerry Garcia's solo album and band mate Bob Weir's *Ace*. Van Morrison dropped by for *Tupelo Honey* and *Saint*



1982
The Dead Kennedys check in to make *Plastic Surgery Disasters*. In the UK the album is certified gold

1995
Producer Rob Cavallo joins US band Green Day as they set about recording *Insomniac*. It goes Top 10

2012
Bob Mould, the former frontman of Hüsker Dü, records *Silver Age*, which is a US Rock Album chart Top 20 hit

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Dominic's Preview, Tim Buckley for *Look At The Fool*, Gram Parson for *GP* and *Grievous Angel*, Gene Clark for *No Other*, Minnie Riperton for *Adventures In Paradise*, and The Doobie Brothers for *Toulouse Street*.

Creedence Clearwater Revival pretty much made it their home, recording *Green River*, *Pendulum* and *Cosmo's Factory* there, while Jefferson Airplane liked the place so much they eventually just moved in – their Grunt label taking over Studio A and creating albums for the group's spin-offs, Hot Tuna and Starship amongst others.

SEEING RED

One of the attractions of Heider's studio was its laid-back attitude. When the Airplane's Grace Slick decided she needed to be in a ring of light to record her vocals, Heider had 12 light canisters embedded in the ceiling of Studio A in the shape of a circle, with different colours at the poles of the compass. Similarly, Studio C's doors were covered in airbrushed paintings at the request of The Grateful Dead.

'Heider appeared right when a lot of artists were dissatisfied with the restrictions of the big label studios', said Stephen Barncard. 'Rules like, "You can't touch the console, the echo chambers go off at 5 o'clock".' Wally Heider's was a world apart.

Another employee recalls a Santana recording: 'When Carlos went in to do his lead guitar, he'd say he wanted the sound to be "red", so he'd blend the lights in the studio until he got the colour he felt good about. He'd set up an altar, there would be candles burning'.

> 'Heider took out an ad proclaiming "I was fired"'

When the recording industry began to experience a dramatic downturn in the later 1970s, Heider sold the studio and its name to Filmways, staying on as manager in the hope the company would fund necessary studio upgrades. The company wasn't game. Heider kicked up a fuss and quit, taking out a full-page ad in the *Hollywood Reporter*, proclaiming 'I Was Fired!!!'. He then retired to his home state of Oregon.

In 1980 Filmways sold the studio on to a partnership composed of Dan Alexander, Tom Sharples and Michael Ward who renamed the business Hyde Street Studios and began remodelling the facilities to attract a wider range of clientele. Dan Alexander just happened to be a major dealer in vintage audio equipment and in Studio C installed the first Helios console ever built, previously located in Olympic Studio Two – the one that recorded The Rolling Stones' *Beggars Banquet*, Led Zeppelin's *Led Zeppelin II* and Queen's *A Night At The Opera*. The partnership also acquired a Trident B-Range console for Studio D.

THRASH ACTS

The Dead Kennedys, Tupac Shakur, Green Day, George Clinton, and Kanye West numbered among the studio's new customers and when Tom Sharples left the partnership in 1985, Ward and Alexander divided the studios, Alexander taking Studio C and Ward keeping the rest of the building plus the Hyde Street name.

In 1986 Alexander leased Studio C to producer Sandy Pearlman, who ran it as Alpha & Omega Studio until 1991. Ward kept control of his studios, except for a brief sublease of Studio A to a producer who ran it as Power Stroke Studios, catering to heavy metal and thrash acts.

Michael Ward is now the last man standing, and has been the sole owner of the facility since 1984, operating Studios A and D. For him today, running Hyde Street is a labour of love: 'I gave up 25 years ago thinking I was ever going to make money on it', he chuckles.

Gram Parsons on the cover of his album *GP*, which he recorded at Wally Heider Studios in late 1972

In 1971 Van Morrison laid down four songs for *Tupelo Honey* at the studios

Carlos Santana in concert in 2019 playing a Paul Reed Smith guitar

Singer Minnie Riperton in 1977 and (inset) label of her 1975 album *Adventures In Paradise*

At work in 1970 (l-r) Doug Clifford, Tom Fogerty, John Fogerty, and Stu Cook of Creedence Clearwater Revival

PHOTO DIDI ZILL

AUDIOPHILE: VINYL

hi-finews ALBUM CHOICE

THE KINKS

Muswell Hillbillies/Everybody's In Show-Biz – Everybody's A Star

BMG BMGCAT720DBOX (six LPs + four CDs + Blu-ray)

Although vying with The Beatles for 'Who makes the costliest box sets?', The Kinks have done us a service by combining two RCA-era LPs into one package, but circa-£150 still requires sacrifice. This pair has long been overshadowed by *The Village Green Preservation Society*, and are surely worth reassessing. As is now the norm, the set contains completely remastered original releases and a vast amount of extras. *Show Biz* was a double to begin with, half-live/half-studio, so this expands on the concert material, while a baffling assortment of LP-only and CD-only editions allows you to pick and choose to suit your budget. *KK*

Sound Quality: 95%

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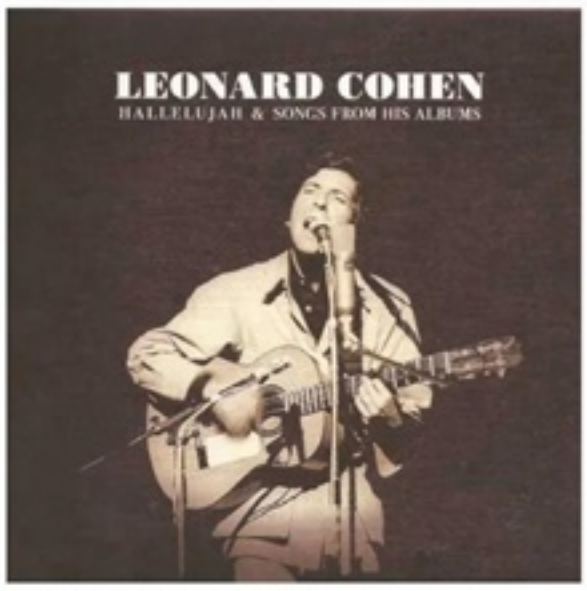


LEONARD COHEN

Hallelujah & Songs From His Albums

Legacy/Columbia 19439985551 (two LPs; one CD)

This collection, 'Inspired by the new film: *Hallelujah: Leonard Cohen, A Journey, A Song*', starts with a previously unreleased track causing completists to buy it, despite its 17 tracks representing 13 of his 15 albums: his now-most-revered composition, 'Hallelujah' recorded live at Glastonbury in 2008. As I am not an expert nor devotee of Cohen, I'm not inclined to call this a 'best of' – what constitutes the best of any artist is always contentious. That said, 'Suzanne', 'Bird On A Wire', 'Famous Blue Raincoat', 'Chelsea Hotel' and other obvious contenders are here, so this does act as a magnificent introduction to the man. It's also on CD [Legacy 19439985552]. *KK*

Sound Quality: 90%

0 - - - - - - - - - 100

THE ORNETTE COLEMAN DOUBLE QUARTET

Free Jazz: A Collective Improvisation

Speakers Corner/Atlantic 1364

This is difficult to approach if you're not predisposed toward the genre. Recorded in 1960, it featured Coleman heading the 'double quartet' of Eric Dolphy, Don Cherry, Freddie Hubbard, Charlie Haden, Scott LoFaro, Billy Higgins and Ed Blackwell, instructed to live up to the title. The resultant free-form, often cacophonous 37m session divided the critics in the day, but that matters not; further commentary is futile. Instead, dealing solely with its sound, this remains an exercise in reproducing space, an early stereo showcase that forces you to focus on each musician. It is challenging and intoxicating. *KK*

Sound Quality: 85%

0 - - - - - - - - - 100

VARIOUS ARTISTS

Potato Chip: Crunchy Dunwich Garage

Beat Rocket BR 176 (two coloured vinyl LPs; mono/stereo)

For fans of the legendary *Nuggets* 1960s 'garage rock' compilation, The Shadows of Knight, or, indeed, any of that era's punk bands (original US meaning, not the '70s UK co-opting of the term), mention of Chicago's Dunwich label will make one's pulse race. Chicago's scene was as vibrant as Detroit's or Boston's, though yielding fewer successes, while this set's 36 tracks, from the above-cited Shads, The Knaves, The Luv'd Ones, The Banshees and nine more, obviate a need to seek out rare, costly 45s. Various flavours of rock and blues, girl groups, homages to the British Invasion – it's all here. Trust me: it's essential if the opening lines apply to you. *KK*

Sound Quality: 85%

0 - - - - - - - - - 100

TOMMY CRONA JAZZ TRIO
Reflections

Opus 3 CD32001

Like 'Scandi' murder mysteries, Swedish jazz is a genre unto itself, spawned by *Jazz In The Pawnshop* way back in 1976. It's still very much alive, as *Reflections* was recorded in Jan '22 in the Culture Hall in Järna, but there's a whiff of nostalgia if you're long-enough in the tooth to remember the first flushes of the form. Veteran pianist Crona is joined by Hans Beckenroth on double-bass and Jesper Kviberg on drums, for a set that also happens to be Crona's debut album. They cover a wide range, from the Great American Songbook to straight jazz, ranging from Chick Corea to Jimmy Van Heusen, plus two from Thelonius Monk. Sonically? This is as real as it gets. *KK*

Sound Quality: 90%

0 - - - - - - - - - 100

THE FRIENDS OF DISTINCTION
Grazin'/Real Friends/Highly Distinct/Whatever

Vocalion 2CDSML 8677 (two SACDs)

Vocalion has been upping its releases from 2-on-1s to 4-on-2s – no complaints from me as this gives us the first four from *The Friends Of Distinction*, each album in both stereo and quadraphonic, reflecting their period: 1969-70. Though probably unknown to UK audiences – they charted in the USA – the sound will be familiar to any who remember the similar 5th Dimension. This was smooth soul, with emphasis on the pop element: lavish arrangements and a pre-Philly Soul feel, if less energetic. Material included slick covers of period classics such as Laura Nyro's 'Eli's Comin'' and Jimmy Webb's 'Didn't We'. A gorgeous-sounding sub-genre of loungecore. *KK*

Sound Quality: 85%

0 - - - - - - - - - 100

SCABARET
Hothouse Flower

Octave Records OCT-0018 (SACD; downloads to DSD64/192kHz res)

This trio – viola, keyboards and a vocalist who handles percussion – immediately reminded me of a quirky 1980s act, Fascinating Aida, despite FA being primarily a comedy troupe. There's a distinct Britishness to this outfit, which also recalls Maria Muldaur's more whimsical moments. As the name suggests, Scabaret pays homage to nightclub/cabaret/vaudeville/music hall and the set works on a number of levels. It even gets funky with 'Better On Paper'. But this is Octave Records, so the sound is nothing short of magnificent [*HFN* Jun '22]. I have a sneaky feeling that Scabaret is highly visual, so seeing them live must be a real experience. *KK*

Sound Quality: 90%

0 - - - - - - - - - 100

CROSBY, STILLS & NASH
Crosby Stills & Nash

Mobile Fidelity UDSACD 2228 (stereo SACD)

Thinking I'd heard the best editions of this West Coast masterpiece, including a first-pressing US LP, Mofi's sublime transfer here proved an ear-opener. Not sure how much is owed to my better-than-average SACD front end, but hearing subtle details I'd missed before simply added to the joy of re-learning one of my all-time Top 10 albums. The trio's harmonies benefit the most, through better separation of the voices (CSN fans will know which is which as they are so distinctive), while the bottom end seemed fuller. 'Suite: Judy Blue Eyes' remains the album's dazzler, while the delicacy of 'Guinnevere' and 'Helplessly Hoping' exhibited more gracefulness. After 54 years, this is still without peer. *KK*

Sound Quality: 95%

0 - - - - - - - - - 100

hi-fi news ALBUM CHOICE

HI-RES DOWNLOADS

hi-finews ALBUM CHOICE

OCTAVE RECORDS

The Art Of HiFi, Vol 1: Bass (DSD64-256; 44.1-352.8kHz/24-bit, FLAC)

www.psaudio.com; Octave Records OCT0030

Forget thoughts of those horrendous compilations designed to shake the body-panels of 'modded' Saxos and 106s with subwoofers worth more than the car itself crammed into the boot... Instead, this is a much more considered set of tracks, designed to explore how good bass, not just more bass, should sound. The first volume in a planned series from PS Audio's Octave label, this is also its first with company CEO Paul McGowan at the controls. It claims to test out and really show off your system's low end with some great music. Recorded simply, and straight to DSD256, this set delivers on its promise, from the five-string bass of the Seth Lewis Trio's pair of tracks to Tom Amend's multi-instrumentalism and the massive scale of church – or in this case synagogue – organ. Whether you want to showcase your system or just enjoy the music, this is a fine buy. ***AE***

Sound Quality: 90%

0 - - - - - - - - - 100

STEVEN ISSERLIS, CONNIE SHIH

A Golden Cello Decade 1878-1888 (96-192kHz/24-bit, FLAC)*

www.hyperion-records.co.uk; Hyperion CDA68394

OK, so not all the music here was written for cello, nor composed during the ten-year period of the title (shifted from 1880-90 to take in Le Beau's 'Cello Sonata In D minor'), but to quibble on those grounds would be churlish as Isserlis has an obvious rapport with pianist Shih. Harpist Olivia Jageurs joins for the opening Bruch 'Kol Nidrei' before the set moves on through works by Strauss, Dvořák and the aforementioned Le Beau, concluding with short pieces by Ernst David Wagner and Isaac Nathan reflecting the opening work. Thus bookended, this is a thrilling recording, both for the musicianship of all concerned and the discovery of that Le Beau piece, and it's treated to a glorious Henry Wood Hall recording by producer Jonathan Allen and engineer Arne Akselberg. It's a delight from start to finish. *AE*

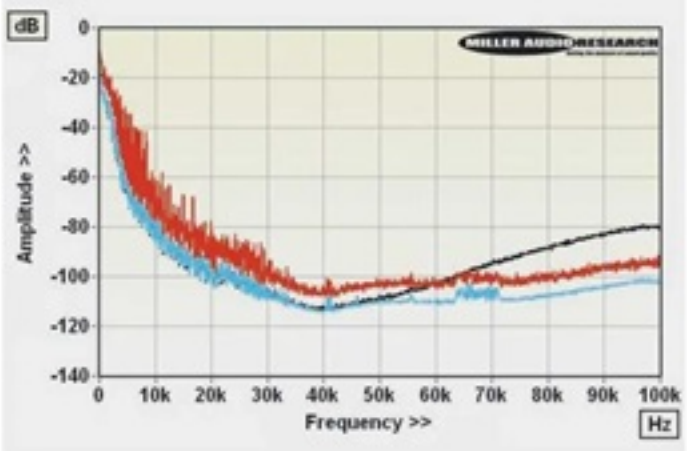
Sound Quality: 90%

0 - - - - - - - - - 100

OUR PROMISE

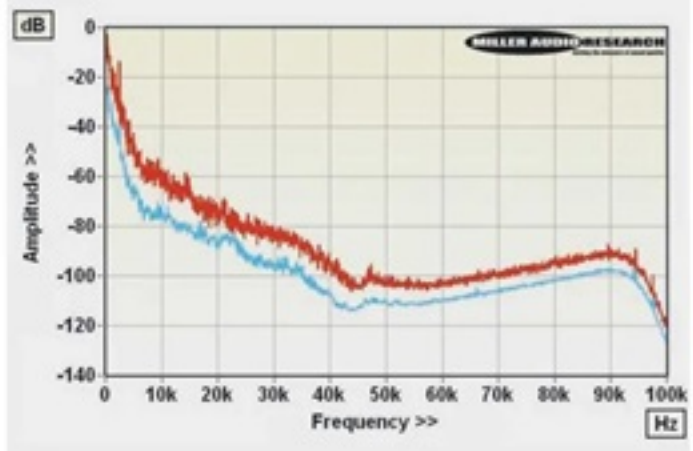
Following our Investigation feature [*HFN* Jun '11] where we examined the claimed quality of 'high-res' downloads, *Hi-Fi News & Record Review* continues to measure the true sample rate and bit-depth of HD music downloads. The Graphs show peak [red] and RMS [blue] spectra. These unique reviews will be a regular source of information for those seeking new and remastered recordings offered at high sample rates and with the promise of delivering the very best sound quality. (Note: an asterisk in the heading denotes a technical reservation – see Lab text). **PM**

LAB REPORT



With the emphasis on 'bass' perhaps the bandwidth afforded by 352.8kHz sampling is overkill, however trk 5 has distortion out to 60kHz and trk 9 some mixed-rate (44.1kHz) content. Trk 6 is good to 35kHz [DSD128, black trace]. PM

LAB REPORT



Tested in 192kHz 'Studio Master' guise, the ~45kHz bandwidth occupied here – largely by the strings rather than piano – suggests it's an upsample of an original 96kHz file. Either way, this is a 'clean' recording, peaking at –0.05dBFs. PM

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ENRICO RAVA, FRED HERSCH

The Song Is You (44.1kHz/16-bit, FLAC)

www.ecmrecords.com; ECM 2746

Here's an unusual pairing – 83-year-old avantgarde jazz trumpeter Enrico Rava on flugelhorn with pianist Fred Hersch, best known as a totally mainstream player. That's it: no bass or drums, just the two instruments and arguably two very different genres coming together in a programme of familiar standards and less well-known tunes. And yet it works so well, in a very fine-detailed and even more finely crafted 'ECM' manner. There's nothing here to spook the horses, as the duo set out their stall with a relaxed opener, Antonio Carlos Jobim's 'Retrato em Branco e Preto', before moving into a rather more challenging inspiration. But beyond that we get one track apiece by each of the two, and standards such as 'The Song Is You' and an almost abstract, stripped-down 'Round Midnight'. Tinkling piano and breathy brass? Of course – walk right this way... *AE*

Sound Quality: 85%

0 - - - - - - - - - 100

MACHAUT/THE ORLANDO CONSORT

Remede De Fortune (96kHz/24-bit, FLAC)

www.hyperion-records.co.uk; Hyperion CDA68399

Continuing its survey of the extensive works of 14th century French poet/composer Guillaume de Machaut, including previous releases *The Single Rose*, *Sovereign Beauty* and *The Lion Of Nobility*, the Orlando Consort again makes a great case for wider awareness of a writer once seen on a par with Chaucer, whose work he is said to have influenced. Beautifully performed by the Consort's perfectly-matched quartet of unaccompanied voices and recorded in an atmospherically reverberant church acoustic, this selection of pieces from his massive (4000+ lines) *Remede De Fortune* is delivered with every word of courtly love crisply captured. Overall, this recording is of exceptional quality, and is a highly rewarding listen. The Orlandos are clearly at ease with this demanding music, and their voices blend as impressively as they shine when singing solo. *AE*

Sound Quality: 85%

0 - - - - - - - - - 100

EDWARD HART/CHARLESTON SO

Under An Indigo Sky (96kHz/24-bit, FLAC)

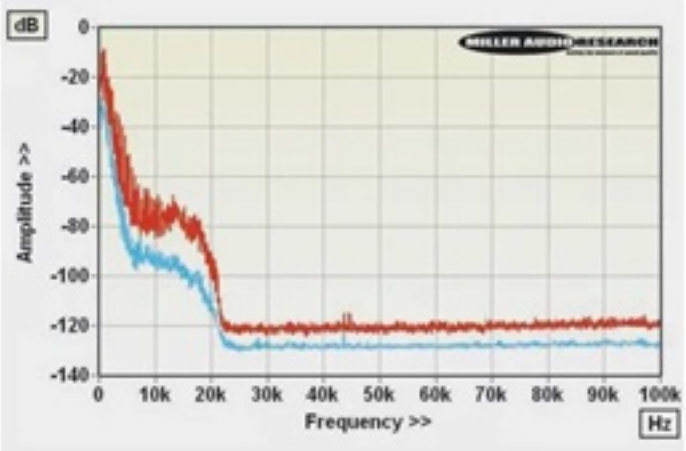
www.navonarecords.com; NV6497

This release from Grammy award-winning New Hampshire-based production company Parma's classical label, Navona, features two works by Edward Hart, composer-in-residence with the Charleston Symphony Orchestra. As well as the title work, a violin concerto aiming to reflect Southern landscapes, it includes *A Charleston Concerto*, marking the city's 350th anniversary, and with the orchestra augmented by the Harlem Quartet. Both works are at times snappy and rhythmic, then rich and romantic, recording engineer Robert Friedrich capturing soloist and CSO Artistic Director Yuriy Bekker as persuasively as the at-times lush orchestral sound. The recordings were captured in the city's Gaillard Center Performance Hall, which adds its own ambience to proceedings. For hardware geeks, the rear of the booklet has a fulsome list of the equipment used. *AE*

Sound Quality: 85%

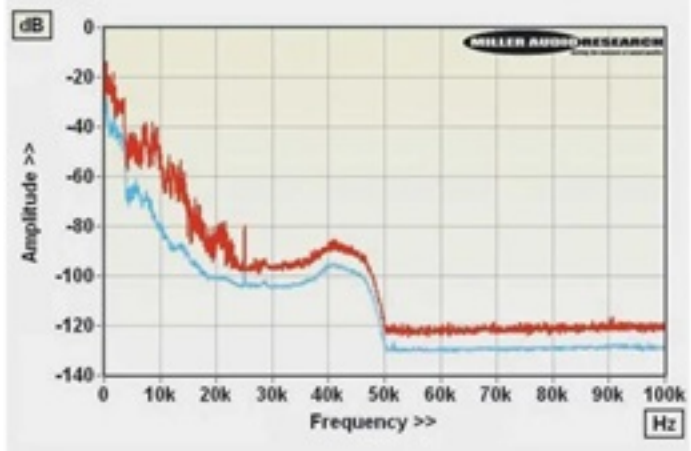
0 - - - - - - - - - 100

LAB REPORT



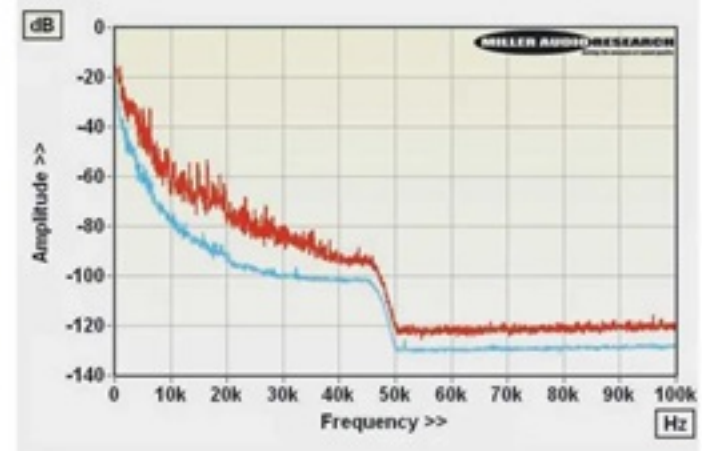
Supplied as a CD-resolution file (44.1kHz/16-bit) the limited ~22kHz bandwidth is still sufficient to capture the piano, mostly sub-10kHz, and upper harmonics of the flugelhorn. Maximum peaks are well managed and held to –3.7dBFs. **PM**

LAB REPORT



Hyperion makes great use of the 24-bit range by keeping peaks outside the top 6dB (minimising stress on the attached DAC/analogue stage). Noise is slightly high (and spurious peak ~25kHz) but the dynamic range remains excellent. **PM**

LAB REPORT



Recorded and mastered through Merging Tech. Pyramix DAW/HAPI hardware, this 'clean' 96kHz rendering shows excellent bandwidth and dynamic range (despite higher-than-average analogue noise) with peaks limited to –0.3dBFs. **PM**

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hi-finews ALBUM CHOICE

UNTHANK : SMITH

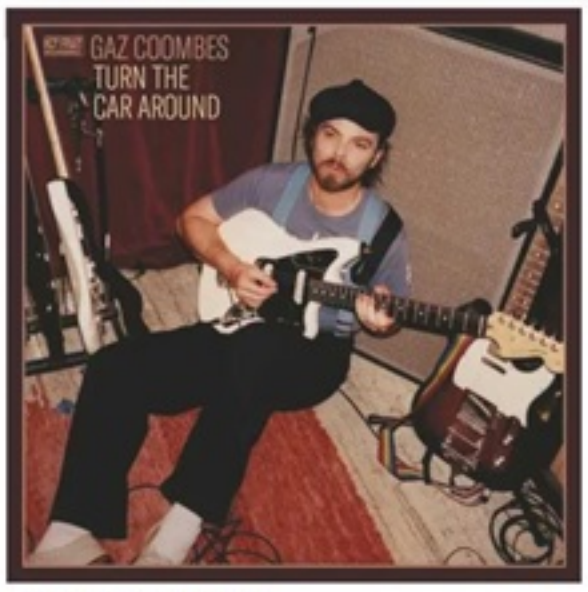
Nowhere And Everywhere

Billingham BRUS 004CD; LP: BRUS 004V

A collaboration between indie rocker Paul Smith of Maximo Park and folk singer Rachel Unthank might seem unlikely, but they both hail from the North East and share a fascination for the region's history and music. Their debut album has an expansive, cool, rather bleak sound, with Smith's guitar and Unthank's cello and harmonium augmented by clarinet and subtle drums. Their voices sound magical together on the sinister trad song 'Captain Bover', about a Tyneside press gang leader, Smith's 'What Maks Makems', about the shipbuilding tradition of Wearside, and a cover of Lal Waterson's exultantly drunk 'Red Wine Promises'. The way they weave these ancient and modern strands together so deftly... *MB*

Sound Quality: 90%

0 - - - - - - - - - 100



GAZ COOMBES

Turn The Car Around

Hot Fruit/Virgin HF015CD; LP: HF015LP

In the '90s, Gaz Coombes wrote knockabout songs such as 'Alright' and 'Caught By The Fuzz' for Britpop trio Supergrass. But as a solo artist, maturity suits him well. *Turn The Car Around* is a vivid recording, particularly the 'live' drum sound, with keyboards and Coombes' own incisive guitar adding colour. The tunes are uniformly strong. The funky lope of 'Feel Loop (Lizard Dream)' spirals into an unexpected chorus and 'Long Live The Strange' is an exuberant celebration of youth and music, with Coombes singing, 'When I'm in a room full of misfits/It feels right'. And the anthemic choruses of the closing 'Dance On' glow with positivity. *MB*

Sound Quality: 85%

0 - - - - - - - - - 100

ANNA B SAVAGE

In|FLUX

City Slang SLANG50470; LP: SLANG50470LP

There's a lot of distilled sorrow and confusion in Anna B Savage's songs. On the intense 'The Ghost' she attempts to separate herself from an old flame, while mobile drum patterns, bass and keyboards interlock with her guitar lines. There are also flashes of humour on 'Pavlov's Dog', with, 'I'm watching, I'm waiting, I'm salivating'. The songs were completed in the studio and some sound a tad sketchy, with similar cadences, but she draws the listener into these narratives with an irresistible voice that reminds of both the art rock poise of Jenny Hval – with whom she has toured – and the warmer tones of Joan Armatrading. Quite a combination. *MB*

Sound Quality: 80%

0 - - - - - - - - - 100

BELLE AND SEBASTIAN

Late Developers

Matador OLE1896CD; LP: OLE1896LP

Nearly three decades into their career, Scottish collective Belle And Sebastian are currently in a hot spell, releasing their second album in eight months. This is a fresh-sounding collection of superior story-based songwriting, shot through with acute observations to arrangements of keyboards, strings, flute, brass and synths. 'I wish I could be content with the football scores' sighs Stuart Murdoch, as the disenchanted protagonist on the sardonically humorous, 'When We Were Very Young'. They sound energised on the raw, guitar-driven power pop of 'Juliet Naked' and Murdoch stretches his vocal cords on the soulful, 1960s pop-influenced 'The Evening Star'. *MB*

Sound Quality: 80%

0 - - - - - - - - - 100

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BILL LAURANCE & MICHAEL LEAGUE

Where You Wish You Were

ACT Music ACT 99613-2

From the bassist/originator and co-founding keyboardist of fusion-inclined collective Snarky Puppy comes the duo album they've long wanted to make. With Laurance on acoustic piano and League mainly on oud, they create unusual and often entrancing sound worlds, very different from Snarky – except perhaps in the bluesy, riff-based 'Bricks'. League rings the changes with fretless guitars and African ngoni, and with peerless rapport the two make music that's tight, complete, focused and full of vibrant life. Some duo albums suffer moments when the keyboard has to fill in just to keep things going, but not this one. It's an absorbing listen all the way through. *SH*

Sound Quality: 90%

0 - - - - - - - - - 100

OSCAR PETERSON

On A Clear Day: Live In Zurich, 1971

Mack Avenue MAC1199; LP: MAC1199LP (two discs)

A less familiar edition of the Peterson trio, but one not to be missed. Drummer Louis Hayes played with Peterson alongside Sam Jones in the '60s, but when he rejoined briefly in 1971 Peterson had just discovered bassist Niels-Henning Ørsted Pedersen. NHOP is just astonishing here, and right from the start, when Hayes kicks off a frenetic tempo for Oscar to leap into and dazzle us with 'The Lamp Is Low', it's an electrifying concert. As well as the virtuosity, the incredible swing, the mastery of dynamics and the strings of fleeting quotes, you get a more intimate Peterson in for example 'Young And Foolish'. The audience was in raptures, and rightly so. *SH*

Sound Quality: 85%

0 - - - - - - - - - 100

THE BANGER FACTORY

Warriors

Banger Factory Records BF004 (CD and LP)

With this third album, The Banger Factory has become an impressive sextet. Trumpeter and leader Mark Kavuma's frontline cohorts are saxophonist/recording studio owner Theo Erskine and Ruben Fox, now on bass clarinet, while on piano is the brilliant Deschanel Gordon. Kavuma's 'Warriors' suite opens with a declamatory 'Part 1' that gives way to the epic 'Part 2', a fabulous groove with great solos. A contrast follows with the haunting 'Chomolungma', Erskine's vision of Everest, leading to Luca Caruso's drum solo, while 'Zorro' is Fox's gentle tribute to his late father, Kinetika Bloco music director Mat Fox. And Kavuma's sinuous 'Senzo' makes a happy finale. *SH*

Sound Quality: 85%

0 - - - - - - - - - 100

HOUSTON PERSON

Reminiscing At Rudy's

HighNote HCD 7343

'Rudy's' means the studio created by the late Rudy van Gelder, and the veteran saxophonist could well reminisce while making this album there, as van Gelder himself recorded Person's string of soul jazz albums back in the late 1960s. This time, with guitarist Russell Malone, pianist Matthew Parish, bassist Larry Fuller and drummer Lewis Nash, he swings lightly through standards both obscure and familiar, somehow even getting away with doing 'Moon River' in a jaunty 4/4. Person also loves to slow the tempo right down, in this case on a poignant 'My Romance'. And with his big, warm tone, softer and fluffier than formerly, his playing is still melodic, unfussy, fresh and emotive. It just comes straight from the heart. *SH*

Sound Quality: 90%

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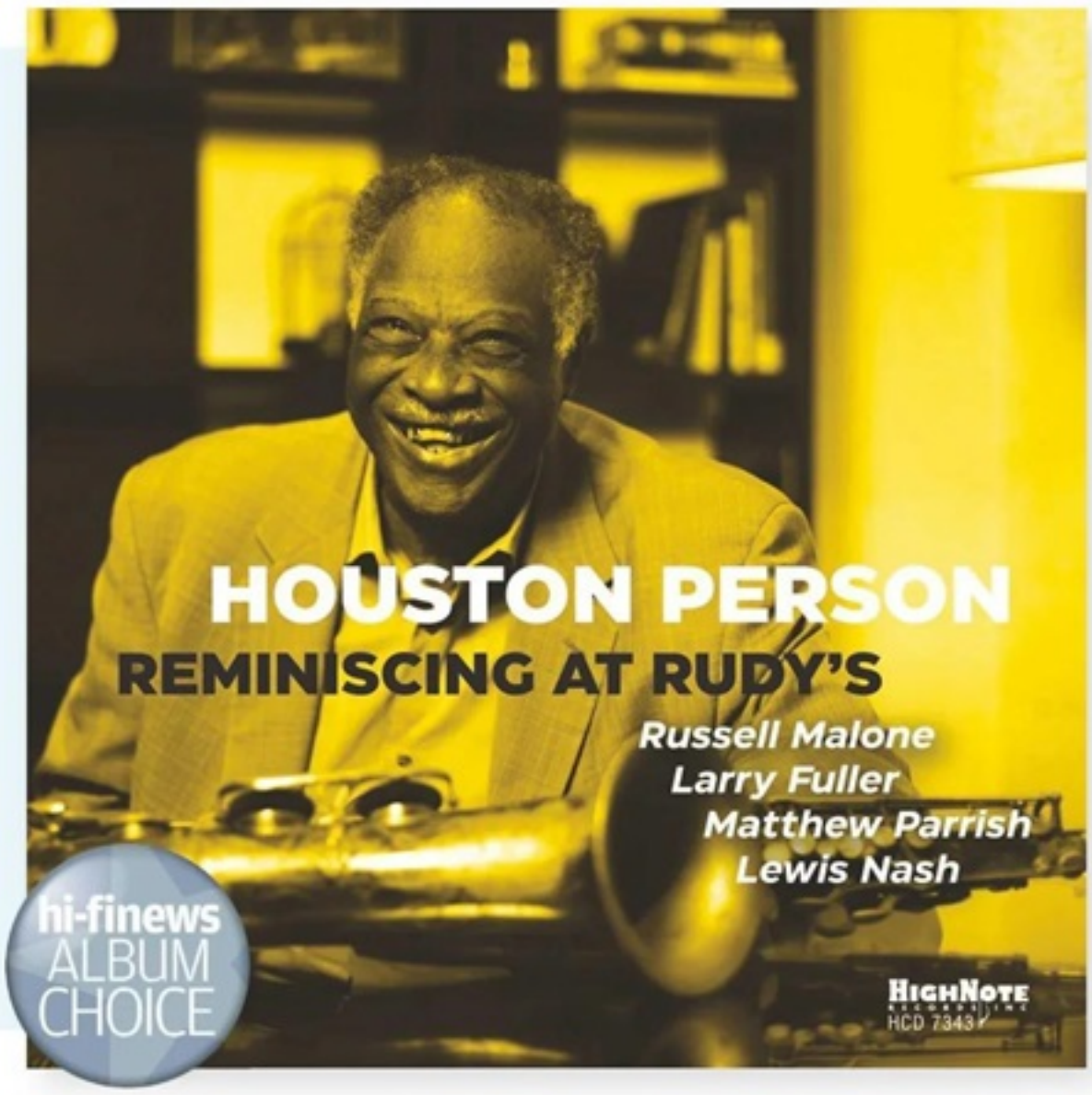

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accuracy in sound

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The name *Cadenza* comes from the Italian word for cadence, which refers to a soloist during an orchestra performance where they play alone in an elaborate manner. It therefore seemed fitting that such a capable and nuanced cartridge series should use the same name.

Like other modern ranges, the Cadenza Series is structured in Ortofon's preferred colour-tier nomenclature; so there are Red, Blue, Bronze, and Black variants available to suit varying budgets and tastes.

Red

This MC cartridge and introduction to the series features a Nude Fine Line stylus which delivers open, dynamic sound with a touch of warmth.

Blue

Featuring much greater dynamics and resolution, the sound is more open and reproduces more accurate details thanks to the Nude FG 70 stylus.

Bronze

A step up in the range, this cartridge boasts a Replicant 100 stylus to produce stereo imaging capabilities that illuminate the farthest corners of the soundstage.

Black

Flagship of the range, the Cadenza Black is simply the best and features a Nude Shibata stylus which guarantees amazing tonal neutrality, dynamics and purity of sound.

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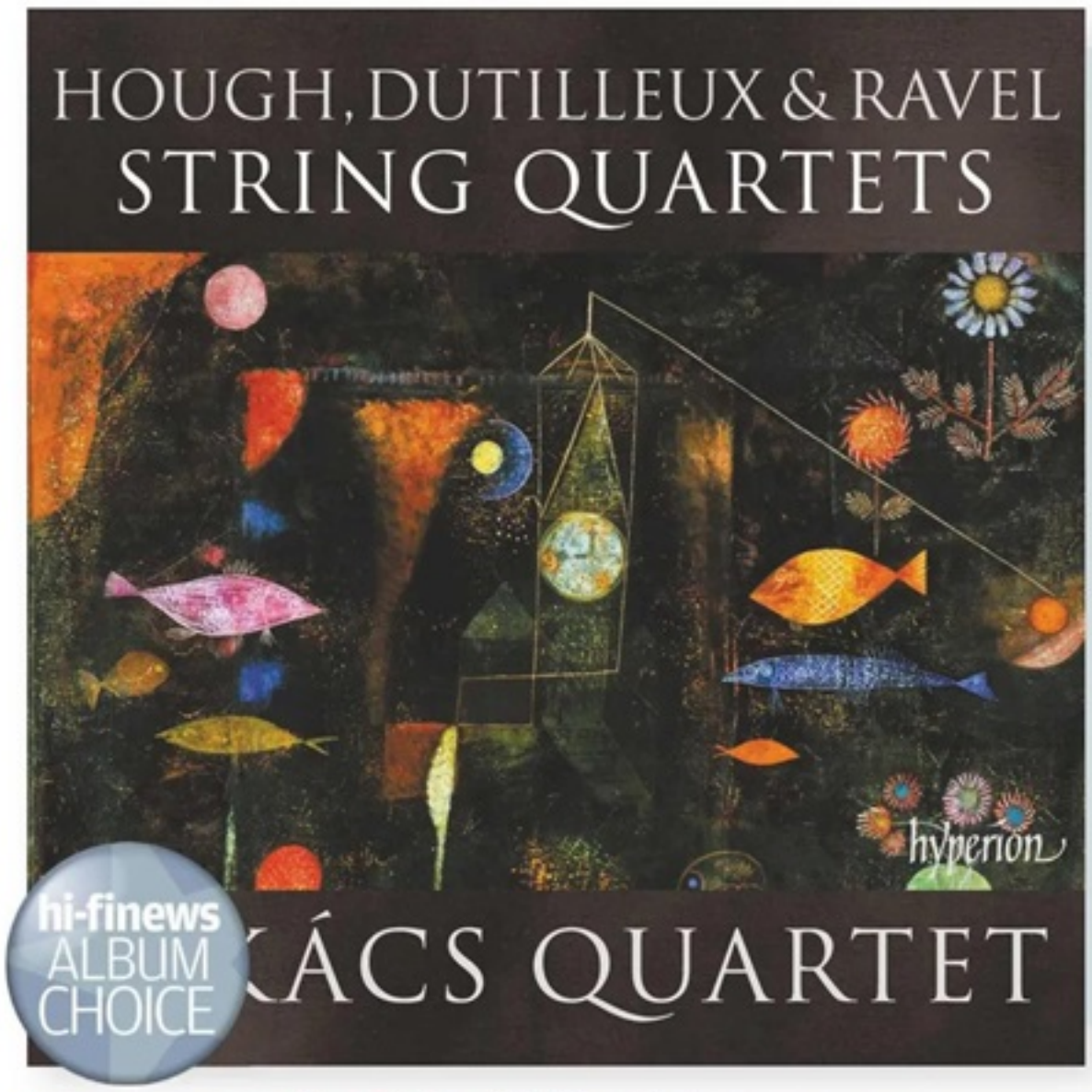

TAKÁCS QUARTET

String Quartets by Dutilleux, Ravel and Hough

Hyperion CDA68400 (downloads to 96kHz/24-bit resolution)

The Takács lineup has changed little since 1975, and the core of its personality on record has endured at least since its Decca days. Each track here, though, is caught on the wing with the picture-book immediacy of their best concerts and their Bartók cycle. If the Ravel is the most familiar piece, it still opens up a world of wonder thanks to the palpable atmosphere of both playing and engineering. Their *Ainsi La Nuit* is less brittle and elliptical than most, more sensuous and painterly. Stephen Hough's 2021 quartet makes a fine complement and contrast, taking an oblique look at tonal harmony and counterpoint through six sketches set in a park, a hotel, a church, and so on, with the sharp but affectionate eye of a musical Cézanne. *PQ*

Sound Quality: 95%

0 - - - - - - - - - 100

GOTHIC VOICES

The Splendour Of Florence: Dufay, Ockeghem, *et al*

Linn CKD700 (downloads to 96kHz/24-bit resolution)

Florence in the 1480s was an artistic honeypot like 1700s London and Paris in 1910, its patronage and spirit of innovation irresistible to Franco-Flemish composers who left home and filled its churches and palaces with music to fit the sensuous curves of their architecture. The Gothic Voices formula wraps up chant, motets, chansons and instrumental intabulations in a package containing the close *a cappella* polyphony of Ockeghem's *Alma Redemptoris*, together with the madrigalian rise and fall of Dufay's *D'ung Aultre Amer*, a tiny, exquisite piece of Marian devotion by Tinctoris, and much more in the warm acoustic of a 12th-c English priory. *PQ*

Sound Quality: 90%

0 - - - - - - - - - 100

CLARE HAMMOND

Montgeroult: Études

BIS BIS-2603 (downloads to 44.1kHz/16-bit resolution)

Hélène de Montgeroult (1764-1836) somehow saved her aristocratic head from the revolutionary block by improvising a set of variations on the *Marseillaise*, among other stratagems. Professor of piano at the Paris Conservatoire as early as 1795, she also broke a path for women composers in France. If these studies had evocative titles and/or a famous name attached, they would be repertoire works. Conservative in harmony by the side of Chopin, it's true, but Montgeroult has a Couperin-like sensibility for a telling image. Clare Hammond plays on a modern Steinway but has a fine ear and touch for the Mozart-meets Mendelssohn aesthetic. *PQ*

Sound Quality: 85%

0 - - - - - - - - - 100

GENS, ORCH DE LILLE/BLOCH

Poulenc: La Voix Humaine, Sinfonietta

Alpha ALPHA899 (downloads to 96kHz/24-bit resolution)

Denise Duval created and defined the anonymous 'Elle' in Poulenc's telephone tragedy; Véronique Gens makes it her own for our time by dialling down the hauteur and desperation, at least to begin with, and leaning into the lyrical strength of Poulenc's lines. Every word of Cocteau's text is audible without recourse to the booklet, and conductor Alexandre Bloch keeps a tight lid on the verismo accompaniment so that we eavesdrop on 'her' and all her frustration and torn-up feelings. As they spiral out of control, Gens opens up the vocal envelope, all the while singing rather than declaiming. Even if you have Duval and Felicity Lott, you'll want to hear Gens. *PQ*

Sound Quality: 85%

0 - - - - - - - - - 100

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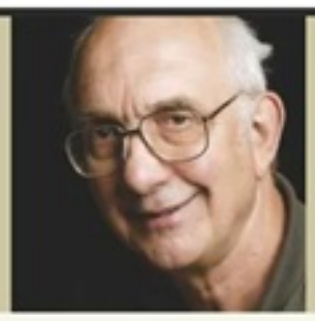

Barry Fox
Technology journalist
Barry Fox trained in electronics with the RAF and worked as a patent agent, but he gave that up to enter journalism. He is one of the world's top technology writers

Full disclosure

Thought NDAs were for palace butlers only? **Barry Fox** lifts the lid on their use in the world of hi-fi, and how they often leave both manufacturers and the press scratching their heads

Non-disclosure agreements or NDAs have been in the news because of the way people who work for famous musicians, and royals, only get their jobs if they sign a legally binding pledge not to reveal what they see behind closed doors. It's like signing the Official Secrets Act. But I suspect few people realise the extent to which 'our' world of hi-fi and home electronics also relies on NDAing.

An NDA, which is pretty much the same as an embargo, lets a manufacturer talk freely about new tech or products ahead of public launch. Everyone signs a form, agreeing to keep the secret until a future date, usually a few weeks ahead. So magazines, which take weeks to produce, and websites which take minutes, can all publish at the same time. Therefore, no-one gets 'scooped'.

BEST LAID PLANS

Hi-fi NDAs 'stick' or 'hold' partly out of trust and decency and partly because any journalist who breaks an embargo will not be invited to future briefings. But the new breed of online 'influencers' sometimes doesn't know, or just ignores, the rules. Bowers & Wilkins carefully planned the launch of its 800 Series Diamond range, with an event at Abbey Road and advance information under NDA. But, soon after the information went out, B&W had to completely change all plans, scrap the NDA and contact everyone involved, telling them they were now free to publish what had previously been secret.

'I must emphasise that our decision to change dates has been driven by some unfortunate and ill-judged "leaks" of highly sensitive product information', said an obviously disenchanted Andy Kerr, B&W's director of product marketing and communications. 'Sadly, the NDA date has been ignored by a very small minority, forcing our change.' I think it's safe to say that at least one writer will no longer be hearing from the company.

NDAs need to be carefully constructed. If busy scribes cannot write about an only moderately interesting box immediately after they have been shown it, and with the demonstrator's infectious enthusiasm still fresh in mind, it may quickly be forgotten as more interesting hardware is shown by other manufacturers. If the box is exciting, with a too-distant reveal date, someone always leaks it via a website.

> 'An NDA holding in the Internet age? No chance'

SPEAKERS CORNERED

Sometimes a big company's highly paid lawyers just don't get this. For reasons never explained, it was Yamaha's Euro HQ in Germany which recently invited the UK press and trade to a 'unique audio event' at the Japan House showrooms in Kensington. We were promised demos of 'Yamaha's most advanced audio technologies, as well as... a sneak preview of some of our future products under NDA'.

This sounded good. Yamaha took over the impressive theatre in the Japan House basement and gave a useful teaser on current developments, variously involving the use of 5G wireless to carry 64 channels of high-quality audio, Artificial Intelligence to modify concert hall acoustics (for instance, extend reverb time in 'dead' areas under a balcony), and let an autonomous electronic piano accompany a live string quartet.

We also heard how Yamaha benefited from Covid lockdown, with 'Work From Home' revitalising the conference speakerphone business and stimulating interest in e-learning IT, for instance for foreign languages. But promised demonstrations of new streaming hi-fi equipment and soundbars turned out to be a couple of unattended amps and speakers doing nothing in a side room until a number of enterprising guests paired their smartphones to them via Bluetooth and started playing music.

ABOVE: Original press release for the B&W 800 Diamond Series showing an embargo date of September the 1st, 2021

A FINE IDEA

What really bewildered, though, was the NDA. Before we could cross the threshold we had to agree not to talk or write about some of what was to be said and shown until June 2023, on pain of fines of €200k. The NDA lasted for two years, with no clue how this related to the June 2023 date. Some of us signed because the chances of an eight-month NDA 'holding' in the age of the Internet are zero. Others likely refused and were barred entry. There were curiously few press present.

So what news and equipment was deemed so secret? The five-page legal document explained that this crucial information was specified in Annex A. But Annex A of the NDA simply said that 'most of the confidential information will be shared verbally'. As no-one ever said what was confidential and what was not, I'll play safe and not write anything solid about anything said or seen. I hope this makes Yamaha's lawyers happy.

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"prowess at retrieving ultra-fine, low level details"
"uncovered layers of lower octave information usually buried in the mix"
"it could be bargain of the year"
Ken Kessler
Full review on our website

Secondly these difficult times with high inflation necessitates the need for good value for money and affordable running costs.

With these things in mind we have designed a "slimmed down" version of our highly successful Stereo 40 MK IV and removed some none essential features whilst at the same time adapting it to use the excellent 6L6/KT66 family of valves. This has the benefit of lower cost valves* with lower power consumption whilst giving almost 30 Watts per channel which is ample for most situations with a good margin of headroom. The circuit and transformers remain virtually identical enabling high performance right up to full power.

The venerable 6L6/KT66 valves have been used for many years in some of the finest amplifiers, their lower power requirements and lower cost makes savings all round. In extensive listening tests we are delighted with the performance with a wide range of loudspeakers with ample power in reserve for good headroom with transients.

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Barry Willis
Journalist for top American audio-video publications
While his main interest is high-end audio, Barry Willis also writes about the culinary industry, visual art and theatre for a huge variety of US newspapers and magazines

Sky's the limit

Barry Willis is routinely dumbfounded by the price tags of both high-end hi-fi and modern art, but – outside of some rare exceptions – it's only the latter that appeals as a financial investment

Special interests make sense to those inside the cult, but are objects of ridicule for those on the outside. Contemporary art and extreme hi-fi are two such interests. A friend was once on track to become a partner with a prestigious law firm, one with a contemporary art collection proudly displayed in its offices. Among the pieces that baffled him was a brick in a vitrine – artist unknown to me, but apparently one highly desirable among collectors. The firm had spent $150k on the piece, nothing more than an ordinary construction brick under glass, somehow transformed by the artist's touch. It was considered a good investment.

OUT OF THIS WORLD

Not long after I heard this story for the fourth time, a pop-up advert appeared on my computer screen for a $200,000 turntable. Two arms and six motors, the text screamed. The thing looked like a discarded piece of the Mars Rover, its spousal approval factor a deeply negative number. With some mirth, I bounced the ad to an audio buddy, who replied with a gushing outtake from an audio journal about a pair of loudspeakers priced at $775,000 – or, to put it another way, three-quarters of a million dollars.

ABOVE: Long out of production but an audio product that today sells far above its original retail price is the Cello Pallette preamp, which cost of $6500 when released in the US back in 1992

He followed that with another bit of praise he found, this time about a 1m stereo interconnect with a $14,000 price tag, not by any stretch the most expensive in its category. Total for the three: a million dollars, and that's without source components or electronics. In the minds of sane ordinary citizens, this is absolute madness.

> 'This turntable looked like a piece of the Mars Rover'

Fiscal insanity seems to run in all directions, but there's a huge difference between contemporary art and extreme hi-fi. Wealthy art collectors may be beguiled by an artist's reputation or be seduced by the latest trends – art critic and cultural observer Robert Hughes said 'they follow each other like schools of bluefin tuna' – but they are astute enough to know when a purchase is a good investment. The brick may very well double in value if the artist continues to produce and maintain a reputation... or if he suffers a career-ending tragedy.

Such financial gain is rarely possible when it comes to audio. Despite constant yammering about 'the convergence of art and science', 'the art of engineering', and so on, audio products at any price point are simply manufactured commodities. They may have artful qualities, but they're not unique creations. Like cars, they begin to lose value the day they are purchased. There are probably not more than five or six audio products ever made that sell above their original retail prices.

Top-level art is a different game. Some years ago, a painting by Gerhard Richter, and owned by Eric Clapton, sold at auction for $18million. Richter, Clapton, and the auction house all did well in that transaction. So will the buyer when auction time comes again.

ABOVE: German visual artist Gerhard Richter at the National Gallery in Prague in 2017

RELIGIOUS VALUES

In my opinion, the now 91-year-old Gerhard Richter is the greatest living artist. I was once lucky enough to visit London's Tate Modern, where a gallery was devoted to Richter's large-format 'forest' series. I sat there for hours basking in his genius. For me it was what church must be for true believers, but it wasn't due to the paintings' value. I've enjoyed transcendence with audio too, but it's never been dependent on a price tag.

The Right Note

Music in the home

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Jason Kennedy, *The Ear*

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Jim Lesurf
Science Journalist
Jim Lesurf has spent a lifetime in audio, both as an engineer at UK hi-fi company Armstrong and reader in Physics and Electronics at St Andrew's University

Blowin' in the wind

Class A amplification is notoriously inefficient, says **Jim Lesurf,** but, rather than demand its obsolescence, attention should turn to our inefficient methods of generating electricity

Should you feel guilty if you use a Class A power amplifier in your audio set-up? The eye-watering elevation of energy prices has meant many are focused on keeping their energy use low. Alas, Class A is inherently inefficient when it comes to playing music. So it seems a bad idea.

Back in the early days of transistor audio, the actual transistors available were poor compared to those that became available in later decades. Designs such as those by Jim Sugden made good sense. But modern transistors and designs are far better nowadays. So should we kick Class A out into the cold? Maybe. Or is Class A now the victim rather than a cause of the situation?

ABOVE: Jim Sugden, whose A21 amp from 1969 utilised a fully transistorised Class A circuit, and (right) Kate's Page at *https://grid.iamkate.com* showing real-time data on the UK's National Grid

GLOBAL WARNING

I don't use a Class A power amp and am happy with the results I achieve. However, my view is that the real problem stems from something else. A report was published in 1972 called *The Limits To Growth*. This pointed to the fact that the Earth's consumable resources are finite. Later we became increasingly aware of the science of global warming. Taking these factors into account we can look at the problems in a wider way.

In winter, of course, a Class A power amp can be regarded as dissipating power that then doesn't need to come from your home's actual heating system. So it can perform a dual role! But personally, I'm more encouraged by keeping an eye on the mix of the UK's energy sources for our electricity supply and seeing that – more often than people realise – the 'green' contribution (mainly from wind turbines, but also solar) frequently exceeds that from burning fossil fuels.

The UK's wind-farm capacity has now passed 20GW and is rising by around 2GW per year. Although some dismiss wind as an 'unreliable' source – saying that 'the wind doesn't always blow' – that misses the potential for further developments. Even when the UK mainland is 'becalmed' there is still a lot of wind out to sea in areas of the Atlantic and North Sea where the UK will be building ever-bigger wind farms over the next few years. These will dramatically increase both the amount of energy available, and the reliability of supply. Wind energy was already cheaper than gas in the UK before our present difficulties. And it is a renewable source.

> 'Is Class A now the victim rather than a problem?'

Quite simply, our present anxieties about keeping warm and comfortable can be seen to stem from our lack of progress in developing and changing over to 'greener' sources. The potential is there, however, and we could transform our situation quite quickly given the will. Note that the above neglects other alternatives like tidal energy, which is very dependable and predictable, and again, has considerable potential for the UK.

As I write, we are having to worry about possible power cuts during the winter. But this isn't due to our choice of audio equipment. The problem isn't the amount of energy we use, it is how we obtain that energy which matters.

MUST DO BETTER

So if someone complains or worries about Class A being wasteful, a fair reply is that the real cause of any problem is that we haven't put enough effort into securing the energy we need. Diversity and choice in our preferences for audio needs to be matched by a similar approach to expanding the range of sources for the energy that powers our lives. Transistors have improved. So have the ways we can deploy to acquire the energy we need.

If you want to monitor the sources of the UK's electricity supply, I recommend 'Kate's Page' at *https://grid.iamkate.com*. And if you want to look at a map of the present wind, wave, *etc* patterns over the UK, check out *https://earth.nullschool.net/#current/wind/isobaric/1000hPa/*.

ORIGIN LIVE

" This was by far the best analogue upgrade I've made in the last decade."

- AV Audio Editor July 2021
ENTERPRISE REVIEW

You might be sceptical that a tonearm could tranform your system, but the editor of Av Audio found that the Enterprise Mk4 tonearm made more difference to his system than anything else. More difference than many other outstanding analogue products, including a world renowned £17,000 phono stage and £8000 cartridge.

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Editors Choice Award
– The Absolute Sound

Product of the Year Award
– HI FI+

"One of the truly special products I have reviewed in the last 18 years"
– Stereophile (USA)

ILLUSTRIOUS TONEARM

Best Analogue Product Award
– Fedeltà Del Suono" (Italy)

"The value of this arm is off the scale"
– John Stratton (Owner)

ENTERPRISE TONEARM

"The ultimate real world tonearm"
– HI FI World

SILVER TONEARM

Most Wanted Component Award
"So far ahead of the pack... looks about to lap them... first choice for those looking for ultra musical LP performance."
– Stereo Times

Best of Year Award
"The Origin Live Silver tonearm is phenomenal and makes me realize what a bargain it truly is at its asking price."
– 6 Moons

"Design of the decade."
– HI FI World

CONQUEROR TONEARM

Tonearm of the Year Award
– HI FI World

Most wanted component award
– Stereo Times (USA)

Best sound at the show award
– Klangbilder (Vienna)

Perfect 10 award
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– Audio 10 (USA)

"For me Origin Live in the analogue sector is the discovery of the year."
– Image HI FI (Germany)

Peter Quantrill
Music Journalist
Peter Quantrill has been writing about music for magazines and record labels for 30 years. When not hunched over a CD player, he'll be at a concert, or the cricket

Tár: a nerd's defence

The new Cate Blanchett movie scored mixed press and poor sales, leaving **Peter Quantrill** wondering whether film has a problem with classical music. Or is it the other way around?

By the time you read this, the red carpet on Hollywood Boulevard will probably have been rolled away and we will all know whether or not Cate Blanchett has won a Best Actress Academy Award for her portrait of the dysfunctional (and fictional – see below) conductor Lydia Tár.

She deserves to: aside from fans of Michelle Yeoh and Michelle Williams, everyone who has seen the movie seems to agree on that, if on little else. In some ways it would be poetic justice for a conductor to win an Oscar. The ceremony itself embodies a peculiar and unlikely – and unlikeable? – paradox of extravagant glamour and earnest self-justification not unfamiliar in the upper echelons of the conducting profession, where travel by private jet coexists with hours of private study and intense public scrutiny.

ABOVE: Deep fake: Cate Blanchett as fictional composer and conductor Lydia Tár and Mark Strong as Elliott Kaplan, a thinly disguised version of Gilbert Kaplan, in Todd Field's movie

CULT CLASSIC

The jury is literally still out, though, on whether such an award (Best Picture is up for grabs, too, plus a Best Director gong for Todd Field) will burnish the retrospective reputation of *Tár*. For now it seems destined to be deemed a 'cult' classic, perhaps to be revived at film festivals some 20 years from now.

Whatever the 'classical music world' is – and you'd think I would know by now, having been part of it professionally for 25 years – everyone in it has a take on *Tár*. Criticisms of it tend to venture in intriguingly contradictory directions. Either the film is too close to the bone and unfair on the women entering and succeeding in an infamously male-dominated profession. Or it is unrealistic, riddled with solecisms which compromise its plausibility.

Both lines of attack, so it seems to me, head up a blind alley. *Tár* is not a documentary. It owes no responsibility to advocate for female representation or for less high-handed autocracy in the world of the maestro. The manipulative behaviour of its protagonist is all too believable, yet most often demonstrated by male conductors. But women can behave like that, too, and they do, in other leadership roles. We know this at some level, otherwise Blanchett's portrayal would not be so magnetically absorbing, so true to a kind of life we can recognise.

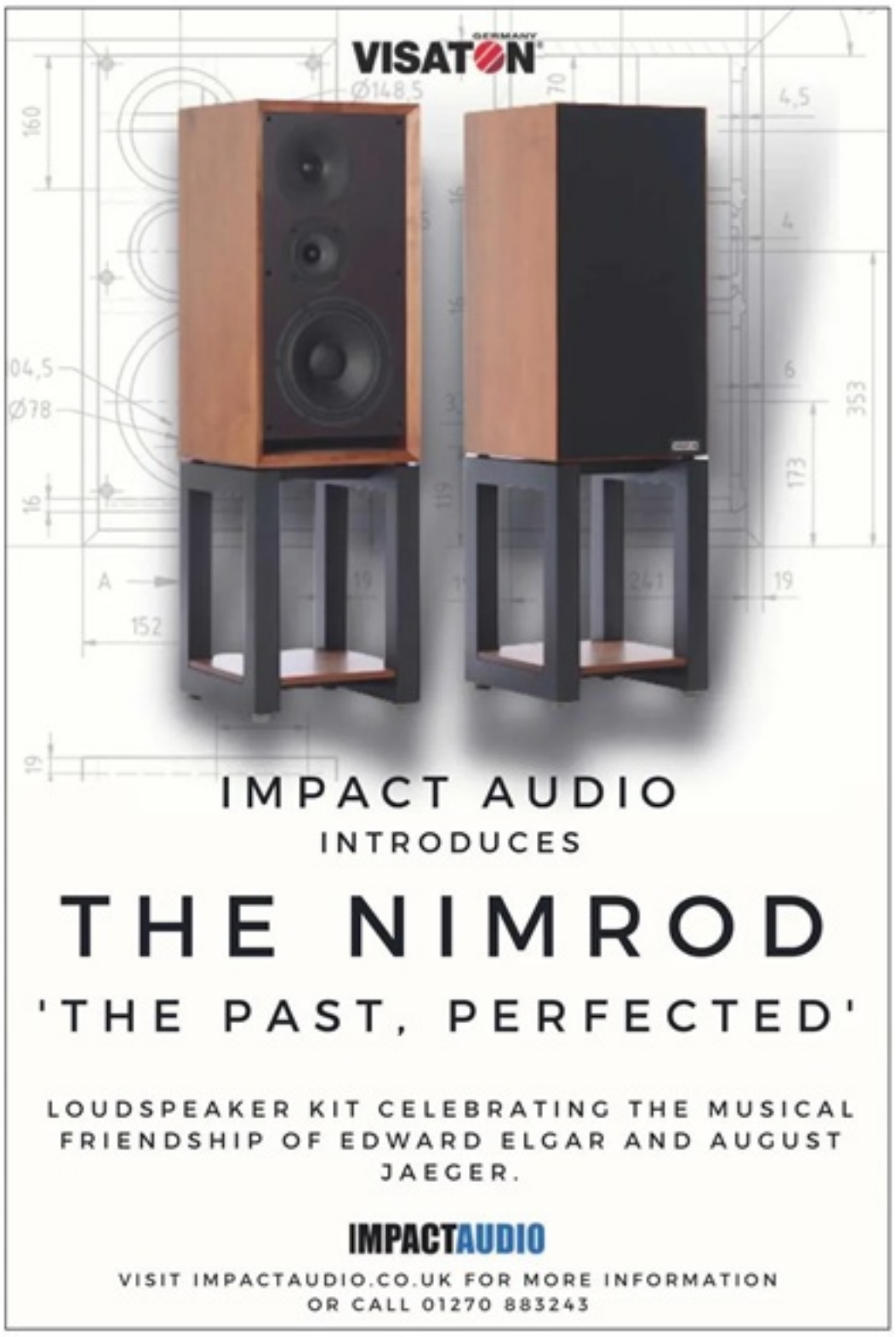
> 'Either the film is too close to the bone or it is unrealistic'

As for the solecisms: again, *Tár* is not a documentary. Blanchett's conducting coach may have gone on record to say that she could do it for real but no one who has seen a conductor at work would confuse the fake with the reality for more than a crotchet. Her gesture to close the first movement of Mahler 5 is as absurd and exaggerated – unmusical, even – as her on-the-fly approach to programming: shall we do Elgar's Cello Concerto? Hey, let's take a vote. Who will be the soloist? Hmmm, let's hold an audition.

Indeed, almost everything specifically musical about the movie is not quite right, off-kilter, down to the collection of Mahler 5 LPs in Lydia's apartment – many of which were CD-era recordings and never issued on vinyl in the first place. In a neat case of life imitating art, Deutsche Grammophon has 'corrected' this mistake by reissuing the BPO/Abbado version which Lydia Tár fixates on, back-remastered onto LP. Embracing this parallel, semi-real world takes us deeper inside Tár's troubled mind, which is the movie's most reliable setting.

KISS ME, CATE

This nebulous classical 'world', encompassing consumers as well as makers of music, is small, and it often feels as though it's getting smaller. Finding ourselves marginalised and even under attack, we instinctively take up defensive positions. But *Tár* is the wrong kind of target. The criticisms aimed at it serve to underline the peculiar nature of conducting, which demands high-level intellectual and performative skills comparable to a barrister called to the Bench. Showing, not telling, is the essence of a conductor's genius (if they have one). I don't expect or demand any actor to emulate that genius. Blanchett is Lydia Tár, and that's enough for me.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Steve Harris
Contributor
Steve Harris edited *Hi-Fi News* between 1986 and 2005. He loves jazz, blues music, vinyl and vintage hi-fi and anything that makes good music come to life

Tale of the tape

Angus McKenzie's lengthy CV included studio owner, recording engineer, audio journalist and must-read *HFN* columnist. **Steve Harris** recalls the life of an inspirational colleague

The late Angus McKenzie, MBE (1933-2005) appears briefly in Steve Sutherland's history of Olympic Studios [*HFN* Dec '22], as he was its founder and first owner. Angus sold his interest in the facility before the studio upped sticks and moved to Barnes in 1966, but he went on to become a household name, in hi-fi households at least, as a leading audio expert.

Angus had lost the sight of one eye at 16, and poor vision forced him to give up his studies in electronics and acoustics. After spending time in Hungary helping refugees of the 1956 uprising, he worked briefly at a recording studio in Fulham before setting up Olympic.

He lost his sight completely in 1959. Typically, while running the studio, he set up a Cultural Society of the Disabled to hold social meetings and concerts there.

SHUTTING UP SHOP

After selling Olympic, Angus opened a record and hi-fi shop, Roundabout Records, actually at a roundabout in St John's Wood. He added a second branch in Hendon, but eventually the business was killed, he said, when yellow lines appeared and prevented customers parking outside. He continued to engineer recordings for classical labels at home and on location, and increasingly took on consultancy and reviewing work.

Angus was the creator and first author of *Hi-Fi Choice* in its original book format, testing a bevy of £100-plus cassette decks for the first issue in 1975. I got to know him in the early 1980s, when I'd become *Choice*'s editor. By then Angus had become *the* authority on cassette tape. One year, he was one of a group of UK journalists taken to visit the Tokyo Audio Fair as guests of Hitachi. As we were shepherded through the main exhibition hall, we probably all felt quite important. But then, above one very large stand, we saw a huge banner that read 'Maxell welcomes Mr Angus McKenzie'.

On another trip to Japan, Angus told me, he'd been invited to the home of Akio Morita, the co-founder of Sony. Mrs Morita had arranged to provide a traditional British dinner of roast beef and Yorkshire pudding in his honour. Everything was perfect – except that no-one had realised that the gravy was supposed to be served *hot*.

> 'Angus was invited to the home of Sony's Akio Morita'

When I joined *Hi-Fi News* in 1986, Angus was only contributing a page per month, but it was an important one. Once, standing in front of the hi-fi magazines in WH Smith's, I was thrilled when another customer came up and took down a copy of *HFN*. He immediately turned to Angus's 'FM Radio' column. I waited to see whether he would buy the magazine. But no, he finished Angus's column and put it back on the shelf.

So I was shocked when Angus phoned to tell me he couldn't do the radio column any more. He relied on his wife Fiona to take his words down by dictation and, to create a topical column, he also relied on Fiona to read press releases and other source material to him. Now their marriage was ending, and this would no longer be possible. Angus then devoted his energies to developing the skills needed to do everything for himself, skills he'd never acquired during his married life. He learned braille. He learned to cook. With a computer that spoke the letters to him, he could type his own articles. Finally, he was given a guide dog, Simon, who became a beloved companion.

ABOVE: Angus McKenzie MBE poses for the camera at the RNIB with his guide dog Simon

ABOVE: Akio Morita, who co-founded Sony and invented the Walkman, pictured in 1989

ALWAYS REMEMBERED

Angus became a well-known speaker and fund-raiser for guide dogs. He also pushed hard for a CD-based system for the RNIB's Talking Book service to replace the clunky Clarke & Smith tape machines that dated from 1960. The RNIB eventually sent out its first Talking Book CD in 2002.

You can find numerous appreciations of Angus online, including the essential obituary tribute written by Fiona for the Journal of the Audio Engineering Society. And he is remembered as an inspiration by all of us who admired not just his achievements but his courage.

YOUR VIEWS

Sound Off!

Send in your views to: Sound Off, Hi-Fi News, AVTech Media Ltd, Safeship Fulfilment Ltd, Unit A, Cullet Drive, Queenborough, ME11 5JS or email your views to: letters@hifinews.com – please use 'Sound Off' in your subject field

Correspondents express their own opinions, not those of *Hi-Fi News*. We reserve the right to edit letters for publication. Correspondents using e-mail are asked to give their full postal address (which won't be published). Letters seeking advice will be answered in print on our Sound Off pages, but due to time constraints we regret we're unable to answer questions on buying items of hi-fi or any other hi-fi queries by telephone, post or via e-mail.

TONEARM AND PICK-UP?

HELP ME BRING GARRARD 401 BACK TO LIFE

My father has given me a Garrard 401 turntable [*HFN* Jul '10] that needs restoring. Building a plinth for it won't be a problem as I am something of a woodwork enthusiast, but which arm should I go for? I have an SME 3009 Series II but this is missing both its headshell and counterweight so looks destined for the hi-fi scrapheap. Also, which cartridge would you recommend? A friend has suggested I consider the Dynavector 10X5 [*HFN* Jul '09].

Marcus Ballard, via email

Ken Kessler replies: Lucky you, as 401s seem to be hot at the moment, with prices on a slight ascent, while spares seem to be plentiful. You'll certainly want a new idler wheel, and if the refurbishment gets too much, there are numerous specialists out there who can perform an overhaul. When I had a 401, it was in a marble plinth which increased stability and quietness, but timber has damping properties and I know of one audiophile making a plinth from panzerholz.

As for a suitable arm, I would prefer to stay 'period' with the SME 3009 which can easily be serviced while spares can be found online. If you'd rather replace it, try to find an Ortofon TA-110 or TA-210 tonearm

ABOVE: One of the perennials of the pick-up world – the Denon DL-103 MC

(though they now seem hard to get hold of); the length will depend on the size of the plinth you'll fashion. Since you're making your own plinth, your only constraint for the arm will be budget. I'm also fond of EMT tonearms for decks of the vintage of your 401, but your choice is absolutely wide open.

Cartridges are another story. SME 3009s, should you choose to refurbish yours, work best with high-compliance MMs in my experience, and there are plenty around, but a Shure V15, of which there are numerous types, would be ideal for maintaining the vintage vibe. Ortofon, EMT and nearly all modern tonearms are more MC-friendly. My choice of cartridge? Either a Denon DL-103 or an Ortofon SPU.

ABOVE: Garrard 401 with SME 2000 plinth as tested in our Jul '10 Vintage Review

Test cassettes

SEEKING A SOURCE FOR TAPES TO RE-CALIBRATE RECORDER

Back in the 1990s I bought a test cassette made by Harrison Hi-Fi as the company's advert in *HFN* said it was recommended by you. I now want to make some adjustments to a Nakamichi BX-300 deck but no longer have the cassette. Where would I find a substitute calibration tape?

Colin Roberts, via email

Patrick Fraser replies: Ian Harrison of Derby offered a range of test cassettes that were an affordable alternative to the very expensive official calibration tapes produced by BASF and TDK. The test signals were recorded in real time for accuracy, which made the process a laborious one. Today your best bet is eBay, where a number of vendors offer tapes that will enable you to analyse and calibrate the frequency response of your deck, correct the azimuth, and measure any crosstalk between the recorder's left and right audio channels.

ABOVE: Nakamichi BX-300 cassette deck from 1984

WhitWorld

OUR HI-FI WORLD THROUGH THE EYES OF WHITWORTH

Valve pre for Leak Stereo 20

WILL A TUBE PHONO STAGE WITH VOLUME CONTROL TRUMP A TRADITIONAL PREAMPLIFIER?

To complement my transistor-based CD and streaming system I'm putting together a classic vinyl/valve set-up. I already have a Thorens TD 124 turntable, a Leak Stereo 20 amp and a pair of Rogers LS3/5A loudspeakers. I'd now like a valve preamp but I understand that the old Leak models aren't really up to the job these days.

I'm happy to buy used equipment but I notice that Icon Audio offers a two-box valve phono preamp – the PS3 MKII – which it claims will drive most power amps. I don't need tape loops or extra line inputs, so maybe this would be the answer. My budget can stretch to around £3000.

Denis Arnold, via email

ABOVE: Rogers LS3/5A loudspeaker, built under a licence granted by the BBC in 1975

Ken Kessler replies: You're a person after my own heart, as I run a couple of LP-only systems without preamps which are driven instead by phono stages equipped with volume controls, most notably the version of the EAR PhonoBox [*HFN* Dec '19] with output control. As I haven't tried the PhonoBox with the Leak Stereo 20, I don't know if that would drive it well enough, but I've used it in a number of set-ups and found it to have ample gain.

Where I do agree with you is that few vintage valve preamps match the dynamics, quietness or transparency of modern tube preamps. If you're adamant about not needing extra inputs, then the Icon Audio PS3 MKII would be an excellent choice, but on the other hand, part of me likes to plan for expansion, so I would also consider a multi-input line-level preamp and enjoy the freedom of choice of an external phono stage. For example, the line-level Primaluna EVO 100 Tube Preamplifier or the EAR Yoshino 834L preamp both come in at around £2500 – to name but two – while adding an external phono stage from Pro-Ject, Thorens, NAD or Mobile Fidelity would still keep you under £3000.

ABOVE: The PS3 MKII uses four ECC88s in the RIAA section and a 6SN7 for the output

JITTERBUG
USB Filter

Can a £39 insect make all your CD files sound better than Hi-Res?

Yes and no: Using the same equipment and a quality DAC, a 24/96 file (for example) will always sound better than a CD 16/44.1 file … but, even a single JitterBug will often allow a CD file to be more musical and more emotionally stimulating than a Hi-Res file without the benefit of a JitterBug.

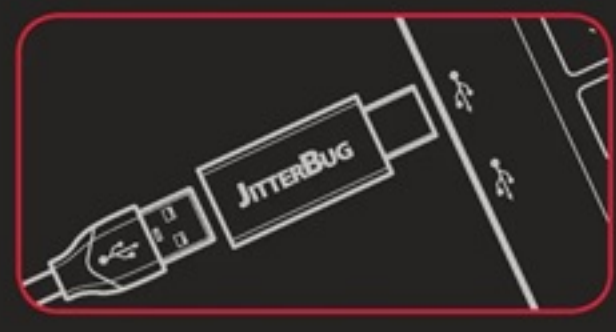
Noise is the problem. Real noise—the kind you can't hear directly. Most often, the word "noise" is used to describe tape hiss or a scratch on a record, but these sounds aren't noise; they are properly reproduced sounds that we wish weren't there.

Problem noise is essentially random, resonant or parasitic energy, which has no meaning. It can't be turned into discrete sounds, but it does compromise signal integrity and the performance of everything it touches.

JitterBug's dual-function line-conditioning circuitry greatly reduces the noise and ringing that plague *both* the data and power lines of USB ports, whether on a computer, streamer, home stereo or car audio front-panel USB input.

A single JitterBug is used in between devices (i.e., in series) as shown below. For an **additional "wow" experience,** try a second JitterBug into another USB port on the same device (such as a computer). Whether the second port is vacant, or is feeding a printer or charging a phone, JitterBug's noise-reduction ability is likely to surprise you. No, the printer won't be affected—only the audio!

While a JitterBug helps MP3s sound a lot more like music, high-sample-rate files have the most noise vulnerability. Try a JitterBug or two on all your equipment, but never more than two per USB bus. There is such a thing as too much of a good thing.



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Room for improvements

RELOCATING SYSTEM TO A BIGGER SPACE BUT WILL NEW AMP AND SPEAKERS ELEVATE SOUND?

After many years of having my system in the lounge of my house I am now able to move it to a larger, dedicated room. This measures 4.1m along each wall and has a height of 2.25m. The walls are of brick and there is a suspended wood floor. I have also had a dedicated mains spur installed.

I have £12,000 set aside for a whole new system but I suspect the room will be the critical factor in determining overall performance. Could a change of amplifier and/or speakers really make a significant improvement over my current Primare PRE35/A35.2 pre/power combination [*HFN* Dec '19] driving much older Bowers & Wilkins 805S standmounts?

The size of the room clearly rules out many highly regarded speakers and I doubt if a 'super amp' would be beneficial in the absence of 'super speakers' to complement it. Your suggestions would be appreciated.

Gary Pearson, via email

ABOVE: PMC's twenty5.23i uses a 19mm Sonomex tweeter above a 140mm woofer

Andrew Everard replies: The good news is that I think your amplification is more than good enough to withstand future upgrades in the loudspeaker department. The even better tidings are that you really won't have to spend anything like that £12,000 to get an improvement. An obvious speaker choice would be the current Bowers & Wilkins 805 D4 [*HFN* Feb '22] standmounts, which are a much more refined version – in terms of both technology and sound – of the speakers you currently have.

But you needn't limit yourself to standmount speakers on account of your room size. A personal favourite floorstander I'd suggest you try, even though you may think it looks rather odd, is the Neat Iota Xplorer [*HFN* Jul '18]. Measuring 740x299x220mm (hwd), it's a compact model with a big, involving sound and – thanks to its design – has a very room-friendly disposition. If you'd rather be more conventional, the PMC twenty5.23i is similarly easy to accommodate, but capable of a sound much larger than its compact size might suggest, while sounding considerably refined.

ABOVE: Primare's network-ready modular PRE35 preamp (top) and A35.2 power amp

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While **Black** offers more clarity, depth and category-defining value than ever before, the take-no-prisoners **Red** provides even more finesse, resolution, torque and more than enough power to drive even the most demanding headphones.

The word is out: DigitalAudioReview.net's John Darko calls DragonFly Red and Black "the finest examples of everyman hifi to ever grace these pages. Their value quotients explode the dial."

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What's really going on with digital?

THE ARRIVAL OF TRANSISTORS, BIT DEPTH, AND LIVE RADIO BROADCASTS THAT 'KICK OUT THE FOURTH WALL' ON FM...

I'd like to pick up on a couple of points made by Ken Kessler in the January '23 issue. The first appeared in his review of the Alexia V loudspeaker. 'I don't know why so many 1980s recordings are the antithesis of those from the velvety 1950s', he wrote, 'but too many nestle on a knife-edge between treble extension and torment'. The next observation was in his review of the SACD of Clapton's *Unplugged* album: 'there was talk among the audiophile community of MoFi's use of digital files somewhere in the chain... No, [the SACD] is not quite as warm and airy-sounding as the LP'.

There are two culprits here, starting with the transistor. The arrival of this solid-state device was advantageous for many technologies but, initially, less so for audio. Early transistor amplifiers didn't sound good for various reasons, including the difficulty of manufacturing fully complementary NPN/PNP output devices. Going back to the 1950s, the cutting lathes for LPs were driven by valves but were replaced by transistors before the technology was really mature.

The second was the advent of digital recording. I have a box set of the Karajan/Berlin Philharmonic *Magic Flute* from 1980. The corner of the box proudly proclaims 'Digital Recording'. On the back, it adds 'The original tape is a digital recording, a new process that represents the latest development in the field of sound recording and will make possible an exceptional brilliance and transparency of sound'. The recording itself doesn't nestle on a knife-edge, it is torment. Many of those LPs cut from digital recordings in the 1980s are really not comfortable to listen to. Which raises the question: what exactly is, or was, wrong with digital? If the *Unplugged* LP is cut from a chain that includes digital files, and sounds warmer and more airy than a digital transfer, then logically these qualities have to be artefacts of the recording's transfer to vinyl.

ABOVE: The original 'chrome bumper' Naim Audio NAT 01 FM tuner with outboard PSU (right). The later 'Olive' models were supplied in casework that matched contemporary Naim amplifiers

The mystery is that the same happens with FM. Live broadcasts from Salford, heard via my Naim NAT 01 tuner, are often 'in my room'. They kick out the fourth wall. Yet I know the BBC has put that music through a number of digital stages before it gets to me. I have a cousin who directs live and recorded broadcasts, and through him I once enjoyed a tour of a BBC truck stationed outside the Albert Hall. The engineer mentioned that he thought bit depth to be more important than sampling rate, and while CD gave us 16-bit, he was working with over 30-bit. So maybe digital, done right by the pros, is of a quality denied to us for domestic use, and we only hear the benefits when there's a transfer back to analogue?

And yet, listen to what Venus Records can do with CD. I have Nicki Parrott and Ken Peplowski's *Like A Lover* – which I first heard on Radio 3 – and it's phenomenal. Sony's PCM-F1 did not disappoint me the way CDs first did and CDs ripped to my little MZ-RH1 do sound better than the original. What's really going on with digital? Is it back to *Stereophile* founder J Gordon Holt's argument that 'the way something is done is of far less importance than how well it is done'?

Charlie Haswell, via email

ABOVE: The 1980 3LP box set of the Karajan/ Berlin Philharmonic *Magic Flute* [DG 2741 001]

Ken Kessler replies: A thesis could be written about this, but I'd like to add three thoughts to Mr Haswell's perceptive comments. As one who has always preferred valves to transistors, there's nothing we can do about modern recording systems, as the clock cannot be turned back. Fortunately, Craft, Mobile Fidelity, Analogue Productions, Impex and other labels do their best to replicate the sounds and skills of the past. For another, I think modern ears demand (after decades of conditioning) drier, crisper sounds. Lastly, I agree with J Gordon Holt: the execution is more important than the method. And I have heard some astounding SACDs. Over to PM!

Paul Miller replies: I will agree with Charles that germanium and early silicon transistor substrates were not born entirely fully-formed just as the early 14-bit/16-bit ADCs/DACs and (as importantly) the first/second-gen digital filters were crude by current standards. That's something we explore every month in our Vintage Review series which illustrates just how far, and in some cases how little, various strands of our audiophile hobby have moved along.

Poorly implemented 'digital' can sound disappointing as can poorly implemented 'anything' (amps of every stripe, speakers, turntables, *etc*) so I would not discount an entire technological genre on the basis of a few bad/early experiences. I would also defend our many readers who prefer the 'sound' of vinyl over digital as their *choice*. However, the fact that some LP reissues are cut from digital/CD copies of now-defunct analogue tapes rather proves that the sound of digital may be entirely healed by the analogue LP/FM replay process.

Down with the Dales

GETTING TO THE BOTTOM OF ORIGINAL WHARFEDALE IMPEDANCE FIGURES

I've purchased a pair of original Wharfedale Airedale speakers from the mid '60s. I know that in 2002 the company revived the Airedale name and unveiled two new speakers that featured modern drive units. The Airedale Heritage, which retained the hexagonal enclosure of the original speaker, has a nominal impedance of 6ohm, while the Airedale Neo has an impedance of 8ohm. However, as the old Wharfedale company is no longer with us I have been unable to find out the impedance of the original Airedale speakers with any certainty. I see it stated variously as being between 12 and 15ohm. Are you able to provide a definitive answer?

Clive Tate, via email

ABOVE: Wharfedale ad from 1965 gives impedance for the Airedale as 15ohm

Steve Harris replies: Launched at the London Audio Fair in the spring of 1961, the original Airedale was 'a movable version' of Wharfedale's big three-way corner speaker, but with its sand-filled baffle it still weighed 91lb! The hexagonal shape meant it could be used in a corner or against a flat wall and, of course, in pairs for stereo. It combined a 15in bass unit with an 8in mid and 3in cone treble, which both had separate level controls. Perhaps related to this, impedance was usually given as '12/15ohm' but by 1965 the ads simply stated 15ohm, which was the norm for loudspeaker specs at the time.

ABOVE: A Wharfedale Airedale Heritage loudspeaker, launched in 2002, is ready to be driven by a Plinius SA-Reference power amp at the Stockholm High End show in 2015

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B&O Beogram 4002 turntable

This turntable from 1975 saw the company cut its costs by replacing digital logic with a system that included a lamp, a photocell and paint. Did sound quality suffer?
Review: **Tim Jarman** Lab: **Paul Miller**

It certainly says something about the enduring appeal of a turntable when the company that made it buys up examples that are over 40 years old and sells them on to a new generation of buyers. It sounds remarkable, but this is precisely what Bang & Olufsen did recently with its 'Recreated Limited Edition' Beogram 4000c. Although offered as a revival of the Beogram 4000 [*HFN* Jul '14], it was actually the later Beogram 4002 that formed the basis of the project.

ON A TANGENT

The Beogram 4000 was a revolutionary turntable in that it incorporated important innovations in every aspect of its design. It may have been derided by traditional hi-fi hobbyists, but the 4000 was taken to heart by wealthy music lovers who appreciated its superb styling and excellent performance and were not put off by its hidden complexity and high price.

The deck featured – for the first time – a properly resolved tangential tracking arm controlled by an electronic servo. Electronic control was also applied to the turntable motor, and the whole arrangement was made completely automatic by digital electronics. The cartridge, meanwhile, fitted directly into the end of the stubby, rigid tonearm and was a miniaturised version of B&O's successful moving-iron design. As the parts were so small, it was decided the cartridge and stylus should be sold as a sealed, factory aligned assembly. The public was not used to the idea of a non-replaceable stylus so to begin with B&O offered replacements at half price. As well as being a top performer, the Beogram 4000 was an instant design classic, raising the bar in terms of style for its rivals at a stroke.

ABOVE: Typically stylish B&O instruction manual employed pictograms and minimal text to help owners get setup and running. The Beogram 4002 was very easy to operate

Good though the Beogram 4000 was, it was not without its challenges, not least in the complexity and expense of its assembly caused by the large amount of electronic circuitry. In addition to the drive systems, the functions of the 4000 were sequenced by an array of digital integrated circuits, this deck representing a very early adoption of 'computer' technology.

KEY DECISIONS

The deck was also originally built with a bi-directional tracking servo, meaning that it could, in theory, play a record whose spiral groove started in the centre and finished at the edge (even though no such thing existed at the time). What was well designed were the mechanical parts, the plinth and the balanced lid mechanism.

As a result, when it came time to replace the Beogram 4000 with the Beogram 4002 all the major alloy castings and most of the cabinet were left unaltered. The only obvious external change concerned the control keys, which were restyled to match those of the

LEFT: The Beogram 4002's key feature was a new control panel designed to match that of the Beomaster 6000 4channel receiver

Beomaster 6000 4channel receiver [*HFN* Sep '21]. Inside, however, the changes were more profound. The quantity of circuitry was more than halved without sacrificing performance or flexibility.

PLASTIC FANTASTIC

The way this was achieved was remarkable in its simplicity. It fact it's a wonder the original version was not designed in the same manner in the first place. Instead of digital logic the arm was controlled by a transparent strip of plastic marked with patterns of black paint. These were detected by a lamp and a photocell, the patterns carefully designed to generate signals which the simplified control system could easily interpret and act upon.

The original version of the Beogram 4002 (types 5501/5502) retained the Beogram 4000's electronically controlled AC motor. This was run from an internal oscillator and power amplifier to ensure both accurate speed stability and provide an easy way to vary the pitch – many B&O customers were professional musicians who especially valued this feature. In 1976 a new version was introduced, the type 5514/5515. The only external change of note was the addition of a mains switch on the rear of the cabinet – a welcome addition since previously it had only been possible to put the deck into standby mode unless one was willing to unplug it from the mains (the same was true of the 4000). Also added was a small red LED, mounted under the front lip of the plinth, to remind the owner that the turntable was switched on.

More significantly, a new motor was fitted to drive the turntable. Made by Matsushita, it was a DC type with a built-in FG servo system. The motor came with a dedicated control chip, meaning that the speed control system of this later version was greatly simplified. The new motor's improved characteristics [see PM's Lab Report, p125] allowed a much lighter platter to be fitted with the result that the suspension was also lightly revised. At the same time, the ability to run the platter without the tonearm moving (for record cleaning) was reinstated. As with the Beogram 4000, this was activated by pressing the 33rpm key while the deck was in standby mode.

> 'The arm was controlled by a transparent strip of plastic'

The cueing system was also improved. In all of these models the arm was raised and lowered by a solenoid coil and a pneumatic cylinder. Since more power was required to pull in the solenoid than to hold it in place once engaged, a switch was attached to the mechanism to reduce the current once the arm was lowered. This proved unreliable in service and was replaced by a simple electronic timer.

ABOVE: With its sleek, low-profile looks and slick controls the 4002 was another design classic from the Danish company and proof that turntables don't have to be bulky or unsightly

WORLD RECORD

The final incarnation of the B&O Beogram 4002 turntable appeared in 1978. Type 5524/5527 was little changed from its predecessors but it came fitted with the company's MMC20EN cartridge in place of the original MMC4000. The main reason for the change was to make possible the introduction of the Beogram 4004 – a specially adapted version that could be operated by remote control when connected to a Beomaster 2400-2 receiver.

In its earlier two versions, the Beogram 4002 was available with a quadraphonic decoder built-in, in order to play JVC CD4 records. This was sold as the Beogram 6000 and came fitted with a special MMC6000 cartridge. The geometry of ⟳

LEFT: The tangential tracking arm with its tiny integral MMC20EN cartridge. Note the beam of light beneath, used for record size sensing

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the tip was designed by B&O's Subir Pramanik and set a new world record for a claimed effective tip mass of just 0.22mg.

The Beogram 4002 may not be quite as beautiful to behold as the original 4000 but it still looks discretely futuristic. Its cosmetics have certainly aged far better than many of the 1970s attempts to push turntable styling forward, most of which, to these eyes at least, now look like vulgar fads. I'm not convinced that the new keys, made from a slitted sheet of stainless steel, are a complete success – they lack the simplicity and tactile feel of the design they replaced. The two illuminated scales indicating manual speed adjustment are an improvement, however.

These occupy a space previously filled by a seldom used track-logging dial (above the function keys), replacing the complex strobe optics of the original model. As ever, the arm has to lumber some distance before it reaches the playing position, so start up is frustratingly slow. More importantly, the mechanism still works with the brand's trademark silky precision just as the Matsushita DC motor fitted to our Beogram 4002 should be considered an improvement. It is quieter and also has greater torque than the earlier AC type.

In common with all the other big B&O designs, the Beogram 4002 has a sound of its own. Auditioning this deck made me realise that, very often, the cherished 'sound of vinyl' is as much a function of the the turntable as the medium itself...

TIM LISTENS

Enter the room when this turntable is playing and you might well find it difficult to determine whether the source you are hearing is vinyl or CD. To be more precise, the 4002 doesn't quite have the detached, ethereally poised sound of the later Beogram 8000, with its single crystal sapphire cantilevered MMC20CL cartridge. But this example, fitted with the correct MMC20EN, came pretty close. The most striking feature was the absence of surface noise, yet there was also no 'sting' or undue sparkle to the sound. Rather, the top end sounded smooth and ever so slightly clipped, just like an old Philips CD player.

It's worth noting B&O recommended a minimum operating temperature of 18°C for these cartridges – run them too cold and they sound dull. In the lower registers, the sound was warm and plump yet the bass showed tight control with no sign of bloom or other forms of unruliness during even the loudest of passages.

'Bass was never dry, just taut and well defined'

The short and stiff arm coupled with the top-drawer subchassis isolation are probably what makes this possible. Compared with the Beogram 4000's AC drive the new Matsushita DC motor seems to give a brisker presentation – the change is a small one but I'd say that the improvement is certainly worthwhile.

The Beogram 4002 isn't perfect though. It could have been a tad brighter in the treble, for example. Yet the most obvious drawback is a swishing noise that can be heard during quiet passages if the record you are playing isn't completely flat.

ABOVE: Given the fact that everything on the deck lay flush it's perhaps remarkable that the deck was capable of class-leading performance

GREAT ESCAPE

This effect is a result of a warped disc not sitting uniformly on the hard black plastic ribs that form the turntable's 'mat'. The depth of the lid and design of the hub precludes the use of a clamp, so there's little that can be done should you encounter this issue, beyond a more obsessive approach to record care.

RIGHT: The die-cast alloy floating subchassis can be seen once the platter has been removed. Also note the oversized housing for the bearing and the electronic control system

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ABOVE: The power switch (the lever by the model name script) shows this is a later Beogram 4002. The cables are fixed, but the lid can be removed (with some effort!)

I couldn't resist playing Boney M's *Nightflight To Venus* [Hansa K 50498] while evaluating the 4002. It was like escaping the grinding drabness of 2023's winter and popping up in the hedonistic 1970s. The big mixes on this LP revealed the Beogram 4002's exceptional bass quality – it is just so well defined and taut without ever sounding bland and dry. A large, solid soundstage was also projected, one with strong vocal centre presence and an explicit sense of space around the performers and their instruments.

Fun though this all was, I did find myself feeling slightly guilty that I wasn't making the best use of this most refined of tools. Swapping the Boney M disc for a recording of Beethoven's *Concerto For Piano And Orchestra No 1 Op. 15* [Deutsche Grammophon 2532 103] created one of those rare experiences where it is possible to completely divorce the enjoyment of the music from what is being used to play it. The delicate piano line in the Largo was just exquisite when rendered by the 4002 – a real 'close your eyes and be there' moment. It isn't easy to describe, but if you know what a real piano sounds like, be assured that the 4002 nails it.

NOBODY'S FOOL

Whether you will enjoy the Beogram 4002 will depend largely on what you want a turntable for. If you enjoy the traditional sound of vinyl replay, with the deck itself contributing to the overall sound, or whether it's just for nostalgic reasons, this won't be the turntable for you. If, on the other hand, you want to extract as much detail from your legacy record library using a vintage player that works with foolproof machine intelligence, then this accurate and precise-sounding deck may be ideal. As B&O said at the time, the Beogram 4002 was for playing records, not for playing with them.

BUYING SECONDHAND

The 4002 used to be considered the poor relation to the 4000, but this has changed in recent years, though condition remains a critical factor. B&O has not made cartridges for many years, meaning an original pick-up in good condition is a must. Note that B&O's top cartridges were always silver; a black one will be a replacement from a lesser model.

> 'The delicate piano line in the Largo was exquisite'

Internally, seizure of the cueing mechanism causes most of the problems. In early examples this can burn out the solenoid so it must be carefully checked before the turntable is returned to use. Some of the replacement belts currently on sale are slightly too small, pulling the platter towards the motor and reducing the effectiveness of the suspension. If you plan to play 7in singles it's essential to check that the record-size detector works – if it doesn't then the stylus can end up being cued into the rotating ribs of the platter, with disastrous results.

HI-FI NEWS VERDICT

The Beogram 4002 may not be the most coveted variant of B&O's big tangential tracking player but it's a marginally better performer than the original 4000 and sturdier and simpler than the later 8000 range. As such, it represents an ideal way to sample what these remarkable machines can do. B&O made thousands and many are still in circulation, so there is no need to settle for anything but the best examples.

Sound Quality: 84%

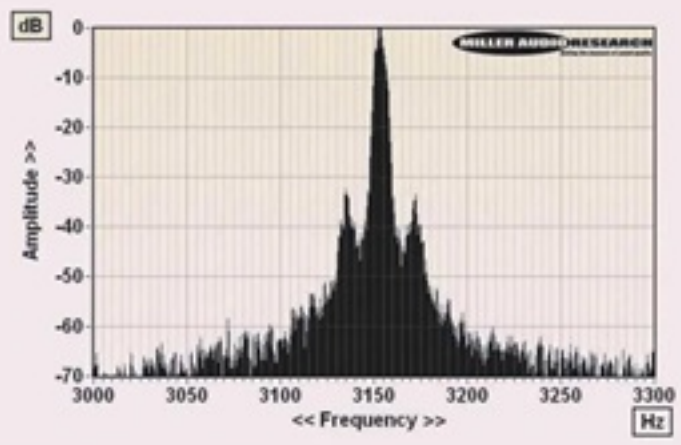
0 - - - - - - - - 100

LAB REPORT

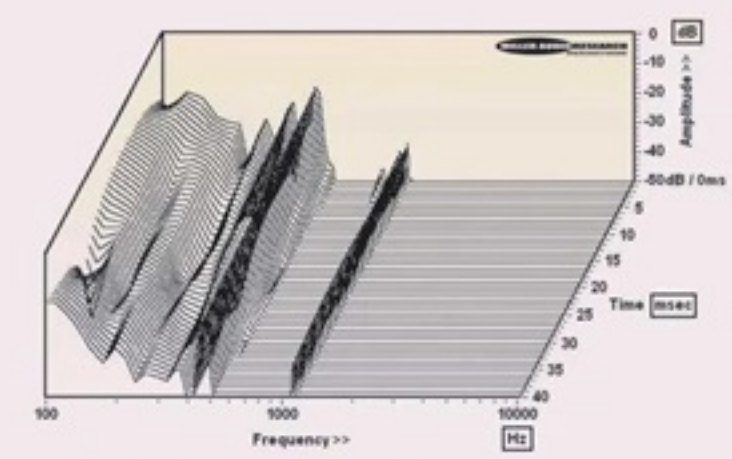
B&O BEOGRAM 4002 *(Vintage)*

Unlike other B&O decks of the era, the 4002 did not include an illuminated strobe to assist in the fine-tuning of its speed. However, with the little adjustment dials (visible in our pictures at either end of the black strip above the function keys) set to their default position, the 4002's absolute accuracy was a mere +0.1% adrift. This is a fine result for a vintage deck equipped with an original Matsushita DC motor unit. And it's here we see the biggest difference with the older 4000 model [*HFN* Jun '14] whose wow and flutter clocked in at 0.12% (peak-wtd) – a mix of ±3Hz low-rate and ±45Hz high-rate components traded here for a significantly lower 0.2% peak wow and a peak flutter of ~0.05% centred around a cluster of sidebands at ±20Hz [see Graph 1]. The latter also appear on the unwtd rumble spectrum [not shown here], along with modes at 62Hz and 128Hz, but the lighter platter still helps the 4002 best the 4000's rumble by ~1dB at –68.3dB (DIN B-wtd). A through-bearing figure couldn't be obtained as the optical wand fouled the rumble-coupler.

The short, parallel-tracking tonearm may offer a very low 5g effective mass (compatible with the ~25cu compliance of the MMC20EN fixed-coil/moving-iron pick-up tracking at a mere 1.2g) but, as we saw in the Beogram 4000, its square-section tube still has a relatively low 120Hz main bending mode. This low-Q mode is broadly distributed across the bass spectrum [see CSD waterfall, Graph 2] but is accompanied by higher-Q harmonics and torsional modes at 280Hz, 360Hz and 460Hz. The elegance of the structure is reflected in the relative cleanliness of this waterfall spectrum, betraying a single, low amplitude, mid/high frequency mode at 1.1kHz. PM



ABOVE: Wow and flutter re. 3150Hz tone at 5cm/sec (plotted ±150Hz, 5Hz per minor division)



ABOVE: Cumulative tonearm resonant decay spectrum, illustrating various bearing, pillar and 'tube' vibration modes spanning 100Hz-10kHz over 40msec

HI-FI NEWS SPECIFICATIONS

Turntable speed error at 33.33rpm	33.35rpm (+0.1%)
Time to audible stabilisation	3sec (time to cue, ~10sec)
Peak Wow/Flutter	0.02% / 0.05%
Rumble (silent groove, DIN B wtd)	–68.3dB
Rumble (through bearing, DIN B wtd)	See lab report
Hum & Noise (unwtd, rel. to 5cm/sec)	–60.2dB
Power Consumption	17W
Dimensions (WHD) / **Weight**	490x100x381mm / 12kg

DNM PA3 S power amp

Does enormous power always make musical sense? **Martin Colloms** hears a new stereo power amp from a designer who begs to differ

Hi-Fi News Jun 1998

Each month *HFN* will bring you an article from our vast archive of features and reviews from yesteryear

DNM's long-awaited update to the PA3 power amplifier has finally arrived. Fully regulated, the PA3 S reflects the uncompromising approach of its designer Denis Morecroft. Offering just 23W per channel but costing £3750, this stereo power amp has undergone a long gestation, the reasons for which Morecroft outlines in our interview boxout [see p129].

He would be the first to accept that the PA3 S forms part of DNM's pre/power architecture, which includes the long-running and oft-upgraded 3B preamp, plug-in cards for which were recently revised to take into account the anticipated leap forward in performance of the PA3 S power amplifier.

For the purposes of this review, DNM supplied the entire 3B/PA3 S system including integral, factory standard, DNM single-strand cabling. On request, DNM also supplied a 'one-off' PA3 S, standard in all respects except for the provision of phono input sockets and speaker cable binding posts to enable more precise comparisons within the context of a standard review system.

ABOVE: The DNM PA3 S power amp with its separate transformer box (top) cost £3750 when released in 1998

CURRENT AFFAIRS

DNM operates a trade-in upgrade policy whereby older and more junior members of the range may be returned in exchange for a full allowance on a new model, minus a £50 handling charge. So, for example, DNM's previous PA1 (£1650) may be exchanged for the unregulated 45W-per-channel DNM PA3 (£2500) or the PA3 S. The returned models are remanufactured to factory condition, and then resold with a full three-year guarantee.

The 'S' version of the PA3 is said to be half as powerful as its unregulated predecessor, Denis Morecroft asserting that the cleaner, more dynamic delivery makes these two power amps equally loud, subjectively at least. In theory, the 3dB difference corresponds to just one volume control notch – or so I keep telling myself!

What you receive is a compact acrylic-cased power amp linked umbilically to a separate transformer box, the latter equipped with a power switch and a detachable IEC plug cable. Inputs are on 5-pin DINs; dealer-set outputs, as required, are for single, double or triple pairs of speaker connections, via buried 2mm gold-plated sockets.

Discrete components are used throughout the PA3 S, which operates in push-pull, direct-coupled, Class A/B mode. Single FET output devices are sufficient at this power level. Stable, rail-to-rail differential circuitry avoids current mirrors, and while this amplifier uses substantial negative feedback, great care has been taken to make the current paths as pure as

possible to help maximise ultrasonic stability and allow feedback to be optimally effective, unconstrained by stray inductance and higher order modulation effects.

With its near-zero metal content, signal paths aided by 'super short' surface mount technology, and idealised 3D topology, the perfected amplifier kernel is fed from stable, clean and dynamic regulated power supplies, these push-pull circuits essentially as refined as the audio amps themselves. While the unregulated version of the amp uses 'Slit Foil' reservoir capacitors, the 'S' version employs the latest 'T' network 10,000pF types, which have been patented by the designer.

DIMINUTIVE DYNAMO

Several visiting products enlivened matters here, including the revived JBL 4312-II, a three-way standmount speaker with a rated sensitivity of 93dB/W. Other models included the Wilson WITT Series II, the Quad ESL63, Spendor SP2-2 and the Electa Amator II from Sonus faber. Reference amplification was the Krell KPB 600, Cary 572 SE triode, Conrad-Johnson Premier 11a and the Naim NAP 250. Control was in-built with sources such as the Krell KPS20i/1 and DAX Decade, these supplemented by the Conrad--Johnson ART and the XTC PRE and, of course, the matching DNM preamplifier, the DNM 3C.

The set of triple-paralleled DNM speaker cables supplied with the PA3 S were terminated in 4mm plugs. For the 'one off' power amp, Transparent, Siltech and van den Hul speaker cables were used. The interconnect to the power amp and links to the 3C were as defined by DNM Design, and DNM's single-stranded mains cables were fitted.

If, for any reason, you have to turn off the PA3 S, you'll find its subsequent rapid warm-up remarkable. From the very first track, the sound unfolds and 'opens out'. Instead of waiting 20 minutes for the mists to clear, they disappear in practically no time at all.

I was surprised to find myself completely at home with this amplifier system. It may be small scale, but the quality was such that I didn't feel short-changed. This diminutive dynamo really did succeed in conveying dynamics and expression, achieving the same degree of satisfaction that had hitherto required substantially higher listening levels.

Partnering the PA3 S with its matching DNM preamp, it was easy to hear a degree of consonance that lifted this product right out of the ordinary. In terms of tonal balance, the DNM combination was indeed somewhat lightweight, partly due to a small degree of dryness and overprojection in the treble, yet the sound was very well focused with wide, atmospheric stereo images and passable image depth. So, while depth fell a little short of the best references, the sound remained clear and highly resolved.

> 'Inside the PA3 S are three stacked circuit boards'

In its ability to portray rhythm, the DNM PA3 S was exceptional, contriving to sound both upbeat and dynamically expressive. The bass was tight, agile and 'boppy', with a believable percussive quality. This was an interesting, detailed and musically involving performance. As a pre/power, despite the peak level limitations, it achieved a standard of performance that is truly audiophile.

ABOVE: DNM founder Denis Morecroft caught on camera in the early '90s at the *Hi-Fi News* show held at the Penta/ Renaissance hotel at Heathrow

BELOW: An amp that proves less is more? Original pages from the June '98 issue of *HFN* in which Martin Colloms tested the PA3 S from DNM

HIGHER LEARNING

Although the DNM preamp was very good, it derived from an earlier generation design, and it turned out that the power amp performs to a still higher standard. Using the ART and other 'direct' signal sources, it was obvious that, in the PA3 S, here was something very special.

In isolation, the PA3 S was found to be close to neutral in tonal quality, in my view somewhere between the big Krell 600 and a Cary 805C SET. The midrange was exceptionally well balanced and, in truth, this even-handed quality was maintained over the entire audible ⮑

WATTS THAT WORK

In terms of watts for wenges, the PA3 S power amplifier looks like a non-starter. But DNM has long challenged conventional wisdom that enormous reserves of power make musical sense

by MARTIN COLLOMS

AMPLIFIERS

DENIS MORECROFT: 'NOT FOR HEADBANGERS'

AMPLIFIERS

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frequency range. For example, in the treble it was highly resolved, very delicate, airy and neutral. As for the bass, within its dynamic compass and modestly limited extension, I rated it among the best.

UNCANNY ABILITY

Given a reference-grade signal input, the PA3 S amplifier showed gains in transparency, attaining a 'very good to excellent' rating with well layered image perspectives. Exceeding its already satisfying performance on rhythm and dynamics, its timing now reached near textbook standard, so well did it 'lock in' both the performance and the performers. It also had the uncanny ability to make many competing power amplifiers sound rather blurred. Beginnings and ends of notes were superbly defined over the whole frequency range, while complex scoring was read cleanly with none of the usual mix-up between the instrumental lines when the music gets complicated.

This stable consistent clarity, and very fine dynamic expression, were both factors in imparting high musical involvement and satisfaction without the need for high listening levels. Aural fatigue was rated consistently low at moderate listening levels, though the sound thinned a little towards full power (not clipped, monitored with a peak power meter!). Bearing in mind its relatively small size and finite bass weight at very low frequencies, and knowing full well that floor-shaking musical events are beyond its compass, I am persuaded by its sheer musicality to rate this amp as pre-eminent in its class.

ABOVE: The rear of the PA3 S sports 5-pin DIN inputs plus buried 2mm gold-plated sockets for single, double or triple pairs of speaker connections. An umbilical cord from the external transformer case plugs into the central three-pin XLR socket

LAB REPORT

Since the regulated power supply is stabilised to a fixed value, output power may be precisely set, no more and no less. Thus, the PA3 S delivers precisely what is promised, being 13.6dBW or 23W into 8ohm loads. With both channels driven, there's about 1dB less output. Meanwhile, almost twice that power was available into 4ohm, and for this moderate powered amplifier, ample current was available. Even for 2ohm loads, more than 6A is generated, given due consideration to the self-resetting thermal cutout.

As for the output impedance, this was remarkably constant at about 0.25ohm, low enough to be

'NOT FOR HEADBANGERS'

The company's amplifiers represent the antithesis to mega-muscle power. As Denis Morecroft, DNM's founder and designer, says, 'I'm not designing for headbangers! They've got to look elsewhere! But in my defence, I'd argue that the dynamic expression I try to achieve makes my amplifiers sound louder and more satisfying than amplifiers of nominally greater power.

'The sense of power in live unamplified music derives from the fine detail, not from the loud parts. For reproduction, resolution is thus more important than brute force... resolution without intermodulation effects.

'Frequently my amps are used like SE triode models with higher sensitivity speakers (greater than 90dB/W) and my distributor finds a good match with the highly efficient French made Rhedeko speakers, which I also like.'

In the PA3 S, Denis Morecroft tried to concentrate on a number of concepts concerning the perfection of the layout of the amplifier. He was concerned to obtain the right relationship of parts, and to understand the current flow and interaction between circuits. He also tried to minimise unwanted coupling even at very high frequencies.

ON THE BOARDS

In Morecroft's view, 'If power supply and ground routing don't intrude then a close approach to a perfect layout can be achieved. I've used modern technology in the form of surface mount techniques to make the power amplifier uniquely small. But then you have to connect power to it.

'My solution involved three stacked printed circuit boards with the power lines and power grounding running vertically, that is at right angles to the area of the circuit, so minimising the interaction between sensitive low level parts and high current regions.

'My research showed that problems of feedback stability, clarity and dynamic expression often related to these unwanted interactions which I've tried so hard to avoid. In a sense it completes a path of development which began with optimised star grounding, ultra clean power supplies, non interactive casework and, despite the expense, full supply regulation when deemed essential.'

BUILDING BLOCKS

DNM has adopted an evolutionary approach to design. As Morecroft reflects: 'While the PA3 S may be substantially different to previous models, it embodies successful aspects of designs that go back over ten years. For example, regardless of expense I've retained the alumina block thermal coupling between the output FETs and the heatsinks to minimise interaction with the metal of the heatsinks.

'And there are high performance power regulators in the supplies of the top model, which give the cleanest and most stable power. In a sense they are power amplifiers in their own right'.

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inconsequential. The response runs from 36Hz-32kHz (±0.5dB). Simple measurements for total harmonic distortion gave very low residuals, better than 90dB midband at full power, while spectrum analysis was necessary to track down the distortion (typically –100dB for low and mid frequencies, and perhaps –81dB, or 0.009%/20kHz).

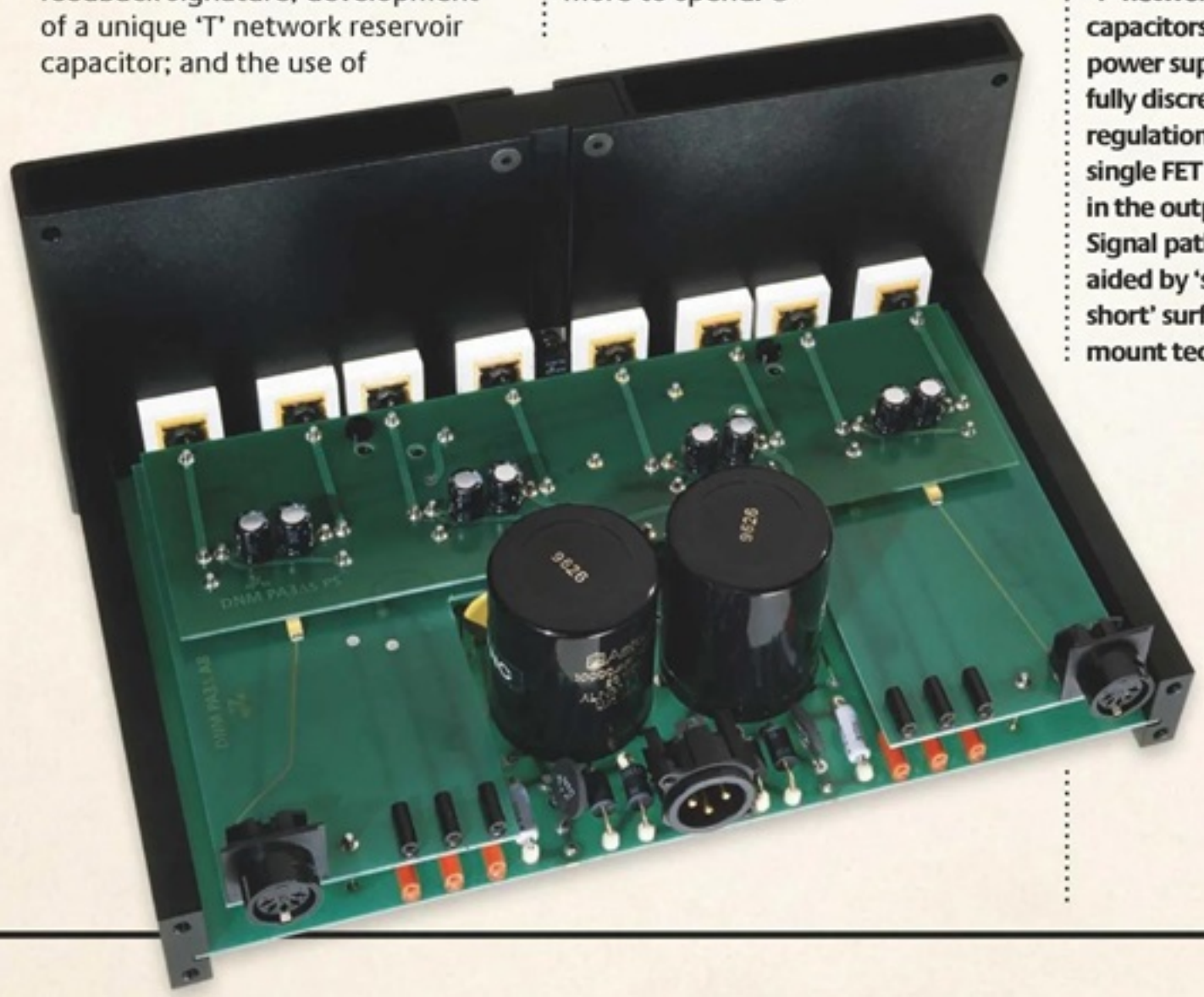
CONCLUSION

The PA3 S largely vindicates Denis Morecroft's assessment of negative feedback. He believes that although invariably it is a major source of problems, as long as extraordinary care is taken to overcome common pitfalls, and careful use is made of appropriate circuit topology, the application of negative feedback in a solid-state amp can be justified as a means of obtaining satisfactory linearity and load matching.

Through his efforts to bring several factors under his control, Morecroft has proved himself to be a highly committed designer who has achieved much. Innovations that testify to Morecroft's achievements include minimisation of stray induced currents; the painstakingly detailed optimisation of stability margins in the ultrasonic range to minimise the feedback signature; development of a unique 'T' network reservoir capacitor; and the use of costly active push-pull regulated supplies and 3D topology in a tiny, optimised amp kernel. The DNM PA3 S proves the validity of Morecroft's work very effectively indeed. Perfection in miniature, this reference quality power amplifier is highly rewarding musically. Despite its high pound-to-watt ratio it is easy to recommend. If, in practice, you find the PA3 S goes loud enough then look no further, unless you have a lot more to spend.

'The PA3 S power amp is perfection in miniature'

LEFT: Denis Morecroft holds a DNM Series 3 preamp at the Lucern Hi-Fi Show in 1987. It was the first amp he made using fully non-metal acrylic casework. The drawing board behind him shows the original semi-transparent film for the Series 3 preamp motherboard, made using black tape as computer-aided PCB design was yet to become routine



BELOW: The PA3 S power amp with its lid removed. It uses custom 10,000pF 'T' network capacitors in the power supply, fully discrete regulation, and single FET devices in the output. Signal paths are aided by 'super short' surface mount technology

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11. SYSTEMS

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OFF THE LEASH!

KEN KESSLER TELLS IT LIKE IT IS...

Newly here, **Ken Kessler** found the UK hi-fi scene was vastly different from things back in the States

This is a Part II of sorts, following on from last month. I'd call it 'A New England Yank in the land of Bib, Colton, and Cecil Watts' because the shock, when I arrived here 50 years ago, was palpable. The British hi-fi scene bore so little resemblance to that of the US that I needed to be re-educated.

NOTHING FROM HOME

It wasn't just the lack of familiarity with the brands on offer, though they did differ considerably. I soon learned that gear sold in the UK fell into three categories. The first was native British-made hardware, of which I previously had seen very little, not having lived in Boston, New York, Chicago or another major city with high-end stores stocking imports. I knew of Celestion, Quad, SME, Garrard, Wharfedale, IMF, Tannoy and KEF, though I never had hands-on (or ears-on) experience of them, while Radford, Leak and other British makers were absolutely new to me.

As for the second group – brands imported into the UK – all of the usual global suspects were shared with the American market: Kenwood (*aka* Trio in the UK), Revox, Tandberg, Sansui, Technics, Yamaha, Dual, Sony, Akai, Pioneer, Rotel, Onkyo, Denon, TEAC, *etc*, were here, although some prices and models differed.

Almost entirely absent was the third group: US brands. Acoustic Research (AR) had the strongest presence, while NAD [see p70] was just starting out. The latter found approval with the 'New Xenophobes' which would dominate the UK market for the next two decades: this included many fans of Linn, Naim, Nytech and others that, as far as I could see, deemed imports, especially from the USA, as the spawn of Satan.

This might surprise readers who entered the world of hi-fi post-1990, and who see US brands dominating the extreme high-end, but in the '70s you had to hunt for the stuff. Even the best-established US brand of them all – McIntosh – was only present in one or two shops. If my memory serves me correctly, it was the late, sorely-missed Peter Merrick who imported McIntosh, while brave retailers such as Unilet and Guildford Hi-Fi would sneak in the odd pair of Acoustats.

> 'It was a massive lesson in economics'

R.E.W. was another haven, serving studios as well as audiophiles, and I recall seeing Infinity Servo-Statics and Crown amplifiers (sold as Amcron here due to trademark issues) in their window displays at their premises in Charing Cross Road.

One of the earliest importers to stand up to the noxious jingoism of the period was Ricardo Franassovici at Absolute Sounds, arriving in the tail end of the 1970s with Beveridge, Koetsu, Oracle, Dahlquist and other exotica. It was an uphill struggle through the 1980s, but he persevered, and paved the way for dozens of other like-minded distributors. He, and they, have outlasted all of the 'Flat Earthers' as have the hi-fi magazines that took a less insular view of the global hi-fi scene. Confused as I was back then, I did revel in a world of discovery especially when reading those British mags that declared mid-fi gear as 'the best in the world' when I suspected these scribes had never heard Heil-AMTs or Phase Linear amps, let alone seen them. It was, as Mel & Tim sang, a case of 'starting all over again'.

While I was on the breadline at the time, but still desperate for sounds in my bed-sit, I scraped together enough money for a Pioneer PL12D turntable, a Teleton amp and a pair of Sennheiser HD414 headphones. It worked reasonably well because the Teleton was fine until you hit half-volume, when distortion set in. Since I couldn't use speakers in my digs, a basement room in a Bed & Breakfast, it was never an issue.

GADGETS GALORE

What I wasn't prepared for were the gadgets which I found on the Tottenham Court Road. As our late monarch said, 'Recollections may vary', but I simply don't recall the USA as producing anything near the number of hi-fi accessories as did the British from the 1950s to the end of the 20th century. Yes, America gave us TipToes and a few other tweaks, but the UK was rife with them, rivalling even the inventive Japanese audiophile community. The Watts Dust Bug was known Stateside, as were Decca brushes and a few others. But the Colton Magna-Lift, early clamps, myriad stands and suspension feet, a host of tape splicing kits, vast catalogues of hi-fi aids from Bib and QED? It was a massive lesson in sociology and economics.

What I learned, and which mercifully applies far less in 2023, was that audiophiles here suffered a dearth in two areas relative to their US counterparts and it made them more creative, reinforcing the appeal of affordable accessories. What hasn't changed is the amount of space one can allocate to a system: US room sizes were and will always remain more generous. The second, however, was disposable income. While wage disparity still exists between the US and the UK, it's narrowed considerably since 1972. And for that we must be thankful.

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